The Relationship between Board Composition and Firm Performance: A Study of South African Public Companies

A research report submitted in partial fulfilment of the requirements of the degree of Master of Commerce by

Munyaradzi Raymond Muchemwa

Student number: 569164

Ethics clearance number: CACCN/1033

Supervisor:

Professor Nirupa Padia

University of the Witwatersrand

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Declaration

I declare that this research report is my own original work and that all sources have been accurately reported and acknowledged. The report is submitted for the degree of Masters of Commerce at the University of Witwatersrand, Johannesburg. This research has not been submitted for any degree or examination at this or any other university.

Raymond Munyaradzi Muchemwa Date

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List of Abbreviations

ASX	Australian Stock Exchange
CALPERS	California Public Employees' Retirement System
CEO	Chief Executive Officer
FT	Financial Times
GDP	Gross Domestic Product
IOD	Institute of Directors
JSE	Johannesburg Securities Exchange
King Code	King code for corporate governance
King I	King code for corporate governance
King II	King code for corporate governance
King III	King code for corporate governance
MRA	Multiple Regression Analysis
NYSE	New York Stock Exchange
OLS	Ordinary Least Squares
ROA	Return on Assets
ROE	Return on Equity
SA	South Africa
SAICA	South Africa Institute of Chartered Accountants
SPSS	Statistical Package for the Social Sciences
TIAA-CREF	Teachers Insurance and Annuity Association – College Retirement Equities Fund
TOB	Tobin's Q
UK	United Kingdom
US	United States
VIF	Variance Inflation Factors

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Abstract

Academic and commercial interest in the corporate governance practices of publicly listed companies has increased significantly in recent years (Rossouw, 2005). With high-profile corporate failures such as Enron and WorldCom heightening the interest in corporate governance practices (Rashid, 2011). It has become evident that the performance of well governed firms is superior to that of less well governed firms (Kyereboah-Coleman & Biekpe, 2005). Despite the fact that corporate governance is multi-dimensional (Kyereboah-Coleman & Biekpe, 2005), this study focused on the impact of board composition (defined by the percentage representation of independent non-executive directors on the board) and board size on the firm performance measures namely; Tobin's *Q* (TOB), return on assets (ROA), and return on equity (ROE) of firms listed on the Johannesburg Securities Exchange (JSE). Annual data, from the period 2006 to 2012 was used while the analysis of data was done using the Multiple Regression Analysis Model. After having analysed the research results, it was found that no significant relationship exists between the proportion of independent non-executive directors on the board and board size, and firm performance measures. Thus, this research study suggests that performance of South African companies listed on the JSE Securities Exchange is not influenced by board composition and board size.

Keywords: Corporate governance, firm performance, Tobin's *Q*, board composition, board size

Chapter I: Introduction

1.1 Background

Corporate failures and massive corporate scandals, including Enron, WorldCom, and Parmalat internationally, and LeisureNet, Regal Treasury Bank Limited and Saambou Limited in South Africa in recent years have aroused considerable interest in the literature and research on corporate governance principles and codes of best practices with a view both to improving corporate governance and to enhancing corporate performance and survival (Sanda, Garba, & Mikailu, 2011). The role of the board of directors constitutes an important element in the implementation of corporate governance (Nicholson & Kiel, 2003). The board monitors the management of the organisation, sets the strategic direction for the organisation, reviews and ratifies management proposals, and is in fact the primary and dominant internal corporate governance mechanism within the organisation (Brennan, 2006). The King[1] Reports on Corporate Governance for South Africa, The King Codes of Governance Principles and the Companies Act, 2008[2] makes a number of recommendations about boards and their function in Corporate South Africa (Cliffe Dekker Hofmeyr, 2013; IOD, 2012).

The need to adopt the correct corporate governance mechanisms is driven by the agency problem and also the associated free-rider problem that make it difficult for any single investor or stakeholder to bear the cost of monitoring managers (Sanda et al. 2011). Agency theory (Jensen

[1] The King Committee on governance issued all King reports on governance for South Africa (the Reports) and also the King Codes of Governance Principles (the codes) in 1994, 2002, and 2009. Together these are referred to as King I, King II, and King III respectively.

[2] Section 66 of the Companies Act, 2008 requires that the business and affairs of a company must be managed by or under the directions of the board, which has authority to exercise all of the powers and perform the functions of the company.

& Meckling, 1976; Eisenhardt, 1989) has emerged as a dominant approach in the literature on economics and finance (Hermalin & Weisbach, 2003). The theory focuses on aligning the interests of owners and managers (Jensen & Meckling, 1976; Fama, 1980; Fama & Jensen, 1983) and is based on the premise that there is an inherent conflict between the interests of the owners of an organisation and its management (Fama & Jensen, 1983). The theory suggests that a board of which the majority of members are independent non-executive directors would be able to monitor any self-interested actions on the part of managers (Zahra & Pearce, 1989; Bathala & Rao, 1995; Nicholson & Kiel, 2007; Kaymark & Bektas, 2008), and this, in turn would enhance the organisation's performance (Luan & Tang, 2007).

On the other hand, resource dependence theory explains how external dependencies may be reduced by linking an organisation to its external environment through both networking and legitimacy (Huse, 2007). Huse (2007) notes that, boards of directors may contribute to the financial performance of an organisation by including directors who have either direct or indirect access to, control of or knowledge of important external resources or influential groups. Thus, boards are chosen to maximize the provision of important resources to the firm (Pfeffer & Salancik, 1978; Hillman & Dalziel, 2003). Klein (1998), for example, suggests that the advisory requirements of the chief executive officer (CEO) should increase to the extent to which a firm depends on the environment for resources. Klein (1998) uses the ratio of debt to assets (book leverage) as a proxy for this dependence. Anderson, Bates, Bizjak and Lemmon (2000) states that firms with bigger boards usually have a lower cost of debt.

The board of directors of a corporation performs the critical function of monitoring and advising the executive management on the corporation's strategy (Rashid, 2011; Lorsch & MacIver, 1989). As advocated by agency theory, conventional wisdom also suggests that a higher level of board independence would enable the more effective monitoring and improvement of firm performance (Huse, 2007). Prior studies have documented that a majority of independent non-executive boards ensures better decisions from the perspective of the shareholder's as regards the carrying out discrete tasks such as the hiring and firing of the CEO (Weisbach, 1988, Borokhovich, Parrino, & Trapani, 1996), the adoption of anti-takeover provisions (Brickley, Coles, & Terry, 1994), and negotiating takeover premiums (Byrd & Hickman, 1992, Cotter, Shivdasani, & Zenner, 1997).

Both institutional investors and corporate governance entities have called for boards dominated by independent non-executive director (Coles, Daniel, & Naveen, 2004). The Teachers Insurance and Annuity Association – College Retirement Equities Fund (TIAA-CREF), one of the largest pension funds in the world, has stated that it will not invest in companies that do not have a majority of independent non-executive directors on their boards (Coles et al. 2004). Similarly, the California Public Employees' Retirement System (CALPERS), another large pension fund, recommends that the CEO should be the only executive director on a firm's board (Coles et al. 2004). Such institutional pressure has resulted in a decrease in both board size (Wu, 2003) and in the number of executive on the board of directors (Huson, Parrino, & Starks, 2001).

Another important factor that is deemed to affect the ability of a board to function effectively is the size of the board (Kyereboah-Coleman & Biekpe, 2005). Lipton and Lorsch (1992) and

Jensen (1993) suggest that larger boards may be less effective than smaller boards as a result of the co-ordination problems experienced by larger boards and also problems such as director free-riding. In addition, Yermack (1996) and Eisenberg, Sundgren, and Wells (1998) have provided evidence that firms with smaller boards have higher Tobin's Q[3]. While Klein (1998), argues that a CEO's need for advice increases with the complexity of the organisation. Diversified firms are more complex than less diversified firms (Hermalin & Weisbach, 1988). Both Hermalin and Weisbach (1988), and Yermack (1996), suggest that the CEOs of diversified firms have a greater need for advice than the CEOs for less diversified firms as they operate in multiple segments, and therefore they require larger boards.

Despite the fact that the results cited above are extremely interesting, they nevertheless raise the question as to why large boards with a high concentration of executive directors do, in fact, exist (Coles et al. 2004). Hermalin and Weisbach (2003) raise the following question, namely "Why has economic Darwinism not eliminated these unfit organisational forms?" Bhagat and Black (2002), on the other hand question whether "executive directors play valuable roles that may be lost in a single-minded drive for greater independent non-executive boards." McConnell (2002) urges caution in compelling companies to conform to a single model of board composition, while the King III report (2009) recommends that an optimal mix of executive and independent non-executive directors serve on boards (Cliffe Dekker Hofmeyr, 2013).

[3] Tobin's Q is the ratio of the market value of assets to the book value of assets. This ratio has been widely used incorporate finance as a proxy for firm value/firm performance (Morck, Shleifer, & Vishny, 1988;McConnell & Servaes, 1990; Yermack, 1996;Bhagat & Black, 2002)

1.2 Corporate governance: – the South African context

Corporate governance in South Africa was not precipitated by any significant crisis in the corporate sector as was the case in certain other countries, but by concerns about competitiveness following the re-admission of South Africa to the global economy after the country's transition to a fully-fledged democracy with the collapse of apartheid in 1994 (Malherbe & Segal, 2001). Corporate governance has developed significantly since both the establishment of the King Committee on Corporate Governance in 1992, and the release of the first King Report (King I) in November 1994 (Armstrong, 2003) and also as a result of the instigation of the Institute of Directors of Southern Africa (IOD, 2002).

The King I Report focused attention on the importance of a properly functioning board of directors as a key ingredient of effective corporate governance (Armstrong, 2004). Despite the fact that King I advocated many of the standards and principles which had been adopted in several Commonwealth countries, following the release of the Cadbury Report in the United Kingdom in 1992, the King I report was perhaps distinguished by its integrated approach to good governance in the interests of a wide range of stakeholders in respect of sound financial, social, ethical and environmental practice (IOD, 2002).

Armstrong (2004) noted that, up until the early 1990's; the South African economy was characterised by a small number of mining finance houses that had dominated the economy. These mining finance houses had included diverse activities and investments, and had operated primarily in South Africa on account of both the stringent exchange control restrictions and the political isolation of the economy (Harrison, 2003). The consequence of this was that the effective functioning of market mechanisms and a sound corporate culture of transparency and

disclosure had been largely stifled while, accompanied by excessive rent seeking on the part of the government and a complacent private sector management (Armstrong, 2004). At the same time, the capital and money markets, though mature and well developed by emerging market standards, were dominated by a small number of large insurance and pension funds with mutual ownership structures in which the same private sector institutions were central (Harrison, 2003). In addition, the utilities, infrastructure industries as well as the key strategic sectors of the economy were under government controlled state-owned enterprises. The rationale for state involvement was overtly political and no serious thought was given to issues of governance (Armstrong, 2004).

By the beginning of the truly democratic political dispensation in 1994, South Africa's economy was in an advanced state of decline as a result of political isolation, inward-looking economic policies and the legacy of racial exclusion (Armstrong, 2004). In addition, the economy was vulnerable to external forces because of insufficient net inflows and an unattractive investment climate (Vaughn & Ryan, 2006). This resulted in a policy of economic liberalisation, with special emphasis on capital market development and corporate reform (Rossouw, 2005). The creation of sound macro-economic fundamentals has enabled more micro-economic targeted reforms aimed at generating economic growth levels which would address South Africa's policy goals, with corporate governance playing a significant role in this process (Malherbe & Segal, 2001).

Post 1994, South Africa's financial system has emerged as a sophisticated and well developed sector of the economy, with marked similarities to the major financial centres of the developed world (Armstrong, 2004) In terms of Gross Domestic Product (GDP) size, both private sector

lending and the equity market rank as one of the best in the world. The increasing importance of financial services in the economy and the role it plays in the asset allocation process have increased the pressure for market reforms in order to improve transparency and efficiency and also a more vibrant corporate governance reforms and principles that align with those of the developed economies such as the United Kingdom and the United States (Armstrong, 2004). This pressure, in turn led to the King Committee on Corporate Governance releasing an updated version of the King I report, namely, the King Report 2002 (King II). King II recognises the importance of board structure, accountability and independence as regards effective corporate governance (Rossouw, 2005). King II contains guidelines and standards on good corporate governance practices, and in essence adopts the concept of stakeholder reporting.

A third report (King III) on corporate governance in South Africa became necessary because of the new Companies Act 71 of 2008 (the Act) and also changes in international governance trends (IOD, 2009; Cliffe Dekker Hofmeyr, 2013). South African listed companies are regarded by foreign institutional investors as ranking among the best governed in the world‘s emerging economies and it is essential that the country strive to maintain this high ranking (IOD, 2009) As evidenced by the significant capital inflows into South Africa before the global financial crisis in 2008, South Africa’s economy has benefited significantly as a result of the fact that its listed companies adhere to sound governance principles and practices (IOD, 2009). The existence of King III and the Act establishes the relevance of this research study within the South African context. A more comprehensive review of the relevant provisions of King III is contained in Chapter 2.

1.3 Statement of the research problem

Corporate failures and scandals such as those of Enron, WorldCom and HIH, and Regal Treasury Bank in South Africa, amongst others, have raised a question regarding the ability of the board of an organisation to monitor management effectively and enhance firm performance (Rashid, 2011; Mizruchi, 2004). This issue is particularly relevant in view of the fact that the boards in question were apparently not sufficiently effective to have been able to check some of the corporate governance failures, as they later came to be known. This in turn, focused attention on the composition and size of these boards. According to Rashid (2011) this raised the following important question, namely; "Who will monitor the monitors?" Although it is agreed that the shareholders may monitor the board by exercising their ownership right in appointing and removing board members, the shareholders may not be aware of the inside activities of the firm (Nicholson & Kiel, 2003).

1.3.1 Research questions

- Does board composition (executive vs independent non-executive directors) influence firm performance and also comply with the requirements/recommendation on board composition as contained in King III and the Companies Act 2008?
- Does board size influence firm performance?

The following research hypotheses were formulated in response to the research questions:

- Does board composition (executive vs independent non-executive directors) influence firm performance and also comply with the requirements/recommendation on board composition as contained in King III and the Companies Act 2008?

H_0: There is an insignificant positive relationship between board composition (proportion of outside independent directors) and firm performance in South Africa.

H_1: There is a significant positive relationship between board composition (proportion of outside independent directors) and firm performance in South Africa.

- Does board size influence firm performance?

H_0: Board size is not positively correlated with firm performance.

H_1: Board size is positively correlated with firm performance.

1.4 Purpose of the study

This study examines the impact of board composition and board size on the economic performance of firms in South Africa. Thus, the study sought to provide additional evidence of the efficiency of board composition and size by examining the explanatory and predictive power of board composition and size in order to determine whether board composition and size could both explain and predict firm performance as measured by the Tobin's *Q*, ROA, and ROE within the South African context.

1.5 Significance of the study

This study is significant because it attempts to analyse the relationship between corporate governance practices and the financial performance of firms in South Africa thus providing the basis for a framework for institutional regulations. Despite the fact that studies by Fama and

Jensen (1983), Baysinger and Butler (1985), and Baysinger and Hoskinsson (1990), have asserted that the effectiveness of a board depends on an optimal mix of executive and non-executive directors, there is very little theory on the determinants of an optimal board composition (Hermalin & Weisbach, 2003). The majority of previous studies have used data from the developed nations such as the United States and United Kingdom and it is questionable whether the findings of such studies are applicable in alternative regions with different social and environmental factors for example in South Africa. It is, thus, anticipated that this study with its focus on South Africa will make valuable contribution to the existing literature on the South African market and Africa as a whole.

1.6 Definition of terms

Board of directors – A board of directors is a body of elected members who jointly oversee the activities of a company or organization.

Independent non-executive directors – is a member of the board of directors of a company who does not form part of the executive management team. They are not employees of the company or affiliated with it in any other way and are differentiated from executive directors.

Corporate governance - is the set of processes, customs, policies, laws, and institutions affecting the way a corporation (or company) is directed, administered or controlled. Corporate governance also includes the relationships among the many stakeholders involved and the goals for which the corporation is governed.

1.7 Layout of the study

The remainder of the research study is organised as follows; chapter 2 contains a discussion of relevant literature and explains the formulation of the research hypotheses. The purpose of the literature review is to provide a basic theoretical and empirical foundation for the study, as well as to extend the conversation on the value relevance of board composition and board size to firm performance. Chapter 3 describes the methodology used in the study and, as such, discusses the data collection and analysis processes as well as, the key variables used in the study. While Chapter 4 discusses the research results relating to board composition and size and firm performance. Finally chapter 5 concludes the study by summarising of the research findings, presenting the conclusions drawn from the research results, suggesting recommendations and areas for further research, and discussing the limitations of the study.

Chapter II: Literature Review

2.1 Introduction

Various definitions have been suggested for the concept of corporate governance (Kyereboah-Coleman & Biekpe, 2005). Charkham (1994, p.1) and Cadbury (1992, p.15) both define corporate governance "as the system by which companies are directed and controlled". While, Metrick and Ishii (2002, p.2) define corporate governance from the perspective of the investor as "both the promise to repay a fair return on capital invested and the commitment to operate a firm, efficiently given investment". Metrick and Ishii (2002) argue that the level of organisational governance may be more important for developing markets with weaker institutions as it helps to distinguish between organisations.

Corporate governance is concerned with the relationship between the internal governance mechanisms of corporations and society's perception of the scope of corporate accountability (Deakin & Hughes, 1997). Corporate governance has also been defined by Keasey, Thompson and Wright (1997, p.12) as including "the structures, processes, cultures and systems that engender the successful operation of organisations". In addition corporate governance may be seen as the entire set of measures that are taken within the social entity that is an enterprise in order to encourager the economic agents to take part in the productive process and, thus to generate some organisational surplus, and to set up a fair distribution between the shareholders, taking into consideration what they have brought to the organisation (Labie, 2001).

In the main this research study has adopted the definition of corporate governance of Huse (2007, p.15) who defines corporate governance "as concerned with ways of bringing the interests

of (shareholders and managers) into line and ensuring that firms are run for the benefit of shareholders by board of directors". This definition has its origin in the separation of the ownership and the leadership of corporations that was discussed in the early 1930s (Berle & Means, 1932). This definition was deemed relevant to the research topic as agency theory was developed in order to offer solutions to the monitoring problem. In addition, the definition was also deemed relevant as it includes the issue of board members and the value they bring to a firm through their links with important resources. The following section contains an overview of the agency and resource dependence theories.

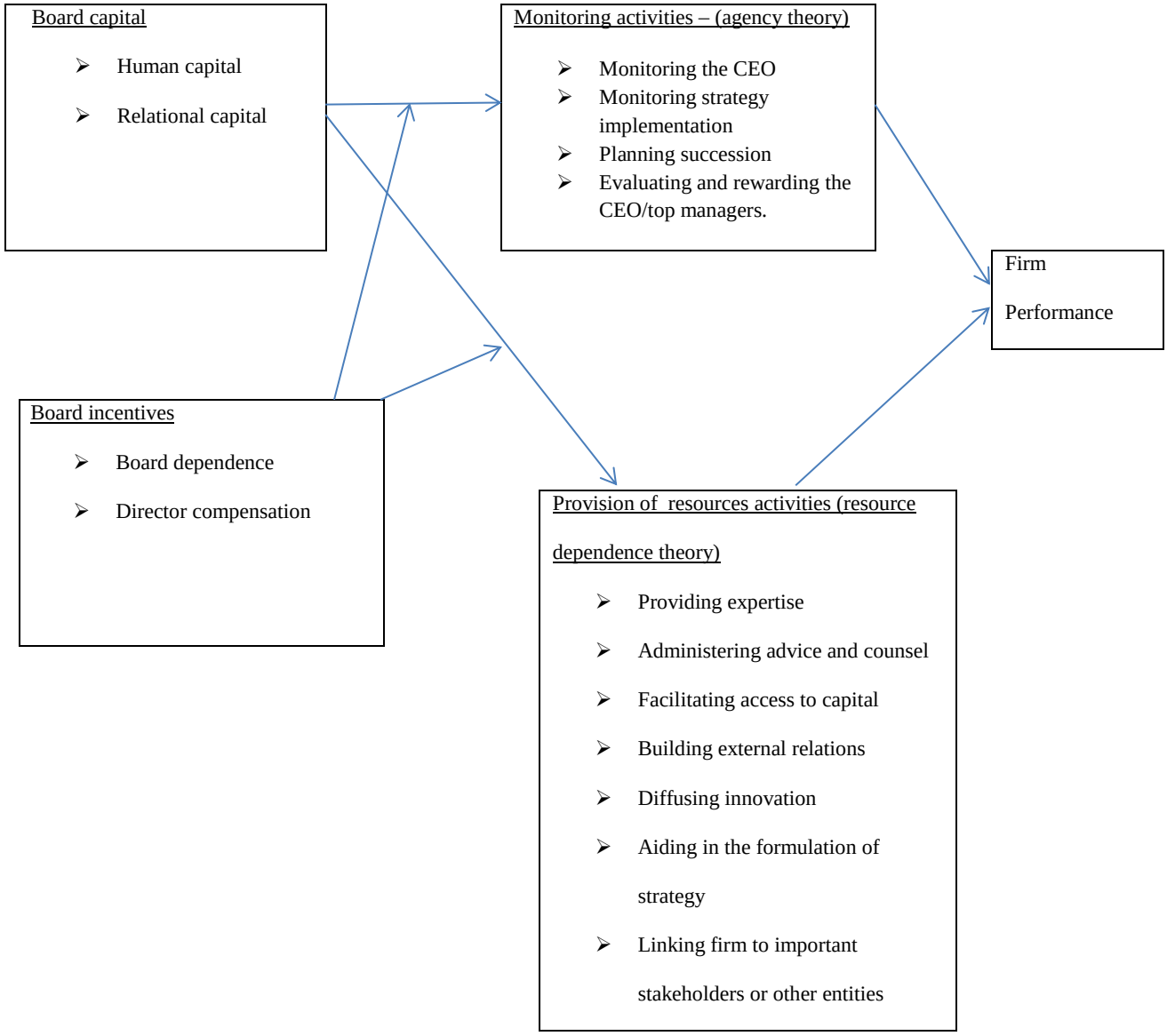
2.2 Agency and resource dependence theories

A number of theoretical perspectives may be used to explain corporate governance practices and problems (Rashid, 2011). Researchers seeking evidence of links between boards of directors and firm performance usually follow the two distinct paths of agency theory and resource dependence theory (Hillman & Dalziel, 2003). Thus the researcher will focus primarily on agency and resource dependence as they are directly related to the research topic at hand.

Hillman and Dalziel (2003) proposed a theoretical model (see fig 2.1 below), in which both agency and resources dependence theories are combined. Hillman and Dalziel (2003) argue that board capital positively influences both the functions of the board, namely, monitoring management and providing resources. As, regards board incentives, Hillman and Dalziel (2003) suggest that board dependence negatively affects the relationship between board capital and monitoring but positively affects the relationship between board capital and the provision of resources. In addition, they argue that board equity compensation positively affects both the

relationship between board capital and monitoring and the relationship between board capital and provision of the resources (Fig 2.1).

Figure 2.1: Theoretical model



2.2.1 Agency theory

The monitoring function of boards, also described as the "control" role (Boyd, 1990; Johnson, Daily, & Ellastrand, 1996), has attracted the attention of corporate governance researchers (Hillman & Dalziel, 2003). The monitoring function refers directly to the responsibility of directors to monitor managers on behalf of the shareholders (Rashid, 2011). The theoretical underpinning of the board's monitoring function is derived from the agency theory, which describes the potential for conflicts of interest that may arise from the separation of ownership and control in organisations (Berle & Means, 1932; Fama et al. 1983). Advocates of the agency theory see the primary function of boards as that of monitoring the actions of managers (agents) in order to protect the interests of shareholders (principals) (Eisenhardt, 1989; Mizruchi, 1983; Andreasson, 2011). On the other hand, legal and finance scholars emphasise the fiduciary responsibilities of directors to ensure that managers are acting in the interests of shareholders (Brainbridge, 1993; Miller, 1993).

Monitoring by the board is important because of the potential costs which may be incurred should management pursue their own interests at the expenses of the shareholders' interests (Nicholson & Kiel, 2007). Berle and Means (1932) assert that when ownership and control are separated, managers are able to pursue their self-interest at the expense of profit maximisation, thereby creating "agency" costs. Monitoring by boards of directors may reduce the agency costs inherent in the separation of ownership and control and, in this way, improve firm performance (Fama, 1980; Zahra & Pearce, 1989).

As regards the monitoring function/activities of directors as noted in Fig 2.1 above, scholars typically discuss a number of specific activities, including the monitoring of the CEO (Boyd, 1995), monitoring the implementation of strategy (Rindova, 1999), planning the CEO's succession (Pitcher, Chreim, & Kisfalvi, 2000), and evaluating and rewarding the CEO/executive managers of the firm (Conyon & Peck, 1998). Each of these activities has in common is the activity's relationship to the monitoring function (Wu, 2003). While the primary driver behind each of these activities is the obligation to ensure that management operates in the interest of shareholders. This obligation often encompasses the scrutiny, evaluation, and regulation of the actions of the executive management by the board (Hillman & Dalziel, 2003).

According to agency theory, the primary obstacle to the monitoring function is board incentives (Hillman & Dalziel, 2003). Agency theorists acknowledge that the incentives available to directors and boards as regards fulfilling their monitoring role in order to protect shareholder interests do vary and; thus, incentives are an important precursor to effective monitoring (Kyereboah-Coleman & Biekpe, 2005). Agency theorists suggest that when incentives are aligned with shareholders' interests, the boards monitoring of management will be more effective, and thus, firm performance will improve (Fama, 1980; Jensen & Meckling, 1976). Two alternatives for board incentives have figured prominently in agency theory research, namely, board dependence and director compensation (Hillman & Dalziel, 2003). Researchers studying the monitoring function have expressed a general preference for boards dominated by independent non-executive directors (Barnhart, Marr, & Rosenstein, 1994; Baysinger & Butler, 1985; Daily, 1995; Daily & Dalton, 1994a,b; Weisbach, 1988). These researchers contend that

boards which consist primarily of executive directors have less incentive to monitor management as a result of their dependence on the CEO/organisation (Hillman & Dalziel 2003).

Agency scholars argue that dependence on the current CEO/organisation is an obstacle to both executive directors and dependent outsiders siding with the shareholders when their interests oppose those of management (Nicholson & Kiel, 2007). However, it is thought that boards dominated by outside, non-affiliated directors, are better monitors because they lack this disincentive to monitor (Hillman & Dalziel, 2003). A key hypothesis of this research study is that dependent boards will be less effective monitors and thus dependent boards will be negatively associated with firm performance. A meta-analysis of 54 studies of board dependence showed no significant statistical relationship between board incentives to monitor and firm performance (Dalton, Daily, Ellstrand & Johnson, 1998).

The second obstacle to a board's monitoring performance that has received significant attention is equity compensation (Jensen, 1993). Equity compensation aligns the interests of shareholders and directors, thus motivating boards of directors to be better monitors (Elson, 1995). When boards do not directly share in the appreciation of the equity of the company, their incentives to uphold shareholder interests are diminished (Dalton, Daily, Certo, & Roengpitya, 2003). The primary hypothesis states that board equity compensation will be positively associated with firm performance because of improved monitoring (Hillman & Dalziel 2003). However, while theoretically appealing, this hypothesis was not statistically supported in a recent meta-analysis (Dalton et al., 2003).

2.2.2 Resource dependence theory

A second important board function is the provision of resources (Nicholson & Kiel 2007). This perspective represents the dominant perspective adopted by scholars[4] in the resource dependence (Hillman & Dalziel, 2003) and stakeholder traditions (Hillman, Keim, & Luce, 2001; Johnson & Greening, 1999; Luoma & Goodstein, 1999). This board function refers directly to the ability of the board to bring resources to the firm with, resources being "anything that could be thought of as a strength or weakness of a given firm" (Wernerfelt, 1984, p.172).

The theoretical underpinning of this function is based on the work conducted by Pfeffer and Salancik (1978) on resource dependency. Pfeffer and Salancik (1978, p.163) note that "when an organisation appoints an individual to a board, it expects the individual will come to support the organisation, will concern himself with its problems, will variably present it to others, and will try to aid the organisation". They assert that boards may offer the following four primary benefits, firstly, advice and counsel, secondly, legitimacy, thirdly, channels for communicating information between external organisations and the firm, and lastly, preferential access to commitments or support from important elements outside of the firm (Pfeffer & Salancik, 1978, p.145,161). This view is primarily concerned with the board's provision of resources, defined broadly (Huse, 2007).

Resource dependence logic suggests that a board's provision of resources is directly related to firm performance (Nicholson & Kiel, 2007). Resources help reduce the dependency between the

[4] These scholars include, Boyd (1990); Daily and Dalton, (1994a,b); Gales and Kesner, (1994); Hillman, Cannella, and Paetzold, (2000); Pfeffer, (1972); Pfeffer and Salancik (1978)

organisation and external contingencies (Pfeffer & Salancik, 1978), diminish uncertainty for the firm (Pfeffer, 1972), lower transaction costs (Williamson, 1984), and ultimately aid in the survival of the firm (Singh, House, & Tucker, 1986).

The provision of resources function of the board encompasses a variety of specific activities as also noted in (Fig 2.1 above), including but not limited to, providing legitimacy/bolstering the public image of the firm (Selznick, 1949), providing expertise, including the provision of internal firm information by executive directors (Baysinger & Hoskisson, 1990), administering advice and counsel (Lorsch & MacIver, 1989; Mintzberg, 1983), linking the firm to important stakeholders or other important entities (Burt, 1980; Hillman et al., 2001), facilitating access to resources such as capital (Mizruchi & Stearns, 1988), building external relations and diffusing innovation (Haunschild & Beckman, 1998), and aiding in the formulation of strategy or other important firm decisions (Judge & Zeithaml, 1992; Lorsch & MacIver, 1989).

The theoretical link between these various activities is the fact that they all focus on the board as a provider of resources, rather than as an evaluator of management (Huse, 2007). Zahra and Pearce (1989) propose two roles for directors in addition to the monitoring or control role, namely strategy and service. Johnson et al (1996) propose a slightly different terminology for the roles of directors, namely, the control, service, and resource dependency roles. Zahra and Pearce (1989, p.292) characterise the "service" role as "enhancing company reputation, establishing contacts with the external environment, and giving advice and counsel to executives". They depict the "strategy" role as directors' active involvement "in the strategic arena through advice and counsel to the CEO, by initiating their own analyses, or by suggesting alternatives" (Zahra &

Pearce, 1989, p.298). on the other hand, Johnson et al.'s (1996, p.411) review of boards defines the “service” role as “directors advising the CEO and top managers on administrative and other managerial issues as well as more actively initiating and formulating strategy”, and the “resource dependence” role as directors “facilitating the acquisition of resources critical to the firm's success” and serving a legitimising function.

According to the resource dependence theory, the primary obstacle to the board's provision of resources is board capital (Hillman & Dalziel, 2003). Board capital consists of both human capital (experience, expertise, and reputation) and relational capital (networking to other firms and external contingencies) (Hillman & Dalziel, 2003). Board capital has been positively associated with the provision of each of the four benefits as discussed by Pfeffer and Salancik (1978). Firstly, board capital has been associated with the provision of advice and counsel, which Westphal (1999) linked to subsequent firm performance. Boards often include lawyers, financial representatives, top management of other firms, public affairs or marketing specialists, former government officials and community leaders, and also other directors who bring with them important expertise, experience, and skills to facilitate advice and counsel (Baysinger & Butler, 1985; Gales & Kesner, 1994).

Secondly, board capital has been linked to the establishment of firm legitimacy and reputation (Daily & Schwenk, 1996; Hambrick & D'Aveni, 1992). Certo, Daily, and Dalton (2001) found that firms with more prestigious boards experienced better performance at their initial public offering. This in turn suggests that the prestige of directors (board capital) may enhance the credibility and performance of the firms they serve (Hillman & Dalziel, 2003). Pfeffer and

Salancik (1978, p.145) note that “prestigious or legitimate persons or organisations represented on the focal organisation's board provide confirmation to the rest of the world of the value and worth of the organisation”. While Bazerman and Schoorman (1983, p.211) state, “An organisation's reputation can be affected by who serves on the board of directors and to whom the organisation is seen to be linked”. Galaskiewicz (1985) argues that an executive's directorate ties similarly confer legitimacy and status on his/her home organisation. Thus, board human and relational capital may also enhance firm’s legitimacy and reputation, and this, in turn may improve firm performance.

Thirdly, board capital provides channels of communication and conduits of information between the firm and external organisations (Hillman & Dalziel, 2003) with board capital providing the firm with timely and valuable information. In addition, board capital serves to reduce the transaction costs of dealing with uncertainties in the environment, thereby enhancing performance (Huse, 2007). Hillman, Zardkoohi, and Bierman (1999) found that when directors established connections with the United States government, shareholder value was positively affected. They concluded that such connections held the promise for information flow, more open communication, and/or potential influence with the government, a critical source of uncertainty for many firms (Hillman et al, 1999).

Researchers have also found that interlocking directorates may play an important role in disseminating information across firms (Burt, 1980; Palmer, 1983; Useem, 1984), by reducing both vertical coordination and scanning costs (Bazerman & Schoorman, 1983), and in serving as a mechanism for the diffusion of innovation (Haunschild & Beckman, 1998). The external ties of

executive directors also facilitate access to strategic information and opportunities (Pfeffer, 1991), enhance environmental scanning (Useem, 1984), and reveal information about the agendas and operations of other firms (Burt, 1983). Empirical evidence has shown that executives' external ties play a critical role in future strategy formulation and subsequent firm performance (Eisenhardt & Schoonhoven, 1996; Geletkanycz & Hambrick, 1997). Rosenstein & Wyatt (1994) have further shown that the shareholder value of a firm improves when the firm's CEO is asked to join the board of another firm.

Finally, board capital may be helpful in acquiring resources from important elements outside of the firm, for example, financial capital influence and influence with political bodies or other important stakeholder groups such as customers, suppliers, and communities (Boeker & Goodstein, 1991). Directorate ties enable firms to secure critical resources, often on more favourable terms than would otherwise have been the case (Boeker & Goodstein, 1991; D'Aveni, 1990; Zald, 1969). A study conducted by Pfeffer (1972), showed that firms with directorate ties to sectors in the environment which represented the most critical constraints outperformed their industry counterparts who lacked such external ties.

2.3 The emergence of corporate governance reforms: - The King Reports

The First King Report on Corporate Governance (King I) for South Africa, issued in November 1994 was inspired by the Cadbury Committee Report on Corporate Governance (1992). King I offered to both South African companies and state-owned enterprises a coherent and disciplined governance framework which was relevant to local circumstances and practical in its guidance (Vaughn & Ryan, 2006). Unlike nearly all other similar initiatives globally, the King Committee

had no official mandate, and thus its recommendations are self-regulatory in nature (IOD, 1994) The King I report made an important contribution to the significant progress of South Africa as regards its inclusive model of corporate governance reform since the political transition in the mid-1990s (Rossouw, 2005; Cliffe Dekker Hofmeyr, 2002). The breadth and sophistication of these reform measures have placed South Africa in the top ranks of emerging market economies, and in some cases even alongside some of the more developed markets (Armstrong, 2004).

The Second King Report on Corporate Governance (King II) for South Africa, issued in March 2002 came about following an assessment of the developments that had taken place in the South African economy and in the global markets since 1994 (Cliffe Dekker Hofmeyr, 2002) and, thus, King II was not driven by any major crisis in the corporate sector. However, coinciding with this review a number of crises did come to light, in both private and public sector companies, and these provided a stimulus to this second review (Armstrong, 2004).Compared to King I, King II acknowledges that there has been a move away from the single bottom line (i.e. profit to shareholders) to a triple bottom line, which embraces the economic, environmental and social aspects of a company's activities (West, 2006).

King II was designed to elaborate on the practices of good governance as required in law, although it was not intended to substitute or in any way to replace legal deficiencies in the South African systems (Cliffe Dekker Hofmeyr, 2013). A particular emphasis in the King II was on the qualitative aspects of good corporate governance (Harrison, 2003). King II was not designed as a regulatory instrument but was in fact developed in order to identify core areas of good practice for boards, directors and companies, with these core areas extending beyond the existing legal and regulatory framework to embrace a number of aspirational issues (Vaughn & Ryan, 2006).

The review reinforced guidelines which acknowledged the societal obligations of companies, indirectly emphasising the expectations of government and the wider community with respect to the contribution of the corporate sector to South Africa's transition and development (Harrison, 2003). In view of the difficulties involved in applying the guidelines throughout the entire South African economy, the guidelines contained in the King II focused primarily on the companies quoted on the JSE, banks and financial institutions, and public sector enterprises and agencies at the national and provincial levels (IOD, 2002).

The Code of Corporate Practices and Conduct which enshrines the core principles in King II addresses the following key components of corporate governance (IOD, 2002): Firstly the board of directors is identified as the focal point of the corporate governance system and is ultimately accountable and responsible for the performance and affairs of the company (IOD, 2002). This in turn calls for a unitary board structure, which is common to countries which fall broadly-speaking under the Commonwealth system of law, and requires a balance of executive and non-executive directors on the board with a majority of the non-executive directors preferably independent of management (IOD, 2002).

Secondly, independence is broadly defined, driven primarily by the more rigorous tests used by international investors, and was directed at the historically tight-knit nature of the South African business community and the need for boards to consider a wider pool of candidates. Thus, board independence, has given particular emphasis to issues of diversity, both in terms of gender and race, highlighted as a strategic imperative for companies wishing to remain relevant in the South African business environment (IOD, 2002).

Board independence has given rise to the need for a more effective induction process for directors as well as the ongoing development of directors to ensure that companies in both the private and public sectors remain competitive with effective boards and directors well versed in their duties and obligations. The Institute of Directors has been particularly prominent in instituting significant training programmes for inexperienced, as well as experienced, directors (IOD, 2002).

Directors training programmes has led to the more sophisticated aspects of board governance coming into play with the requirement that directors and boards undergo regular evaluation, preferably conducted by an independent facilitator, in order to validate both board effectiveness and continuing suitability of individual directors standing for re-election (Armstrong, 2003). In view of the shortage of skills in the South African economy, it was not considered appropriate to prescribe age limits and constraints on the length of service on boards, although these are problems. However, it was felt that it would be difficult to address these problems in the light of the myriad of other demands facing boards in South Africa at the time (Harrison, 2003).

Thirdly, while the size of boards was not regulated, the issue of size has drawn the attention of institutional investors and regulators with the result that a number of boards have seen fit to reduce their size to a more acceptable level in governance terms (Armstrong, 2003). The roles of chairman and CEO are required to be separate and this has since been reinforced by the JSE, banking and financial markets regulators, and regulations governing public sector companies. In addition, the position of chairman should be held by an independent non-executive director, and steps have been taken by a wide variety of companies to address this requirement (IOD, 2002).

Lastly, the IOD (2002), noted that the length of executive director service contracts is restricted to a maximum term of three years and should be the subject of shareholder confirmation if longer, while extensive disclosure of the remuneration and benefits of individual director (executive and non-executive) is now enforced by a number of the regulators.

The Third King Report on Corporate Governance (King III) issued by the King committee in September 2009, became necessary because of both the new Companies Act, 2008 and changes in international governance trends (Cliffe Dekker Hofmeyr 2013). The existence of King III establishes the relevance of this research study within the South African context. King III is a report that builds on the pertinent issues raised by King I and King II. However it also addresses the inclusion of and renewed emphasis on issues such as sustainability, governance, the role and function of the audit committee, stakeholder relationship, compliance with laws and regulations and integrated reporting (Deloitte, 2009; IOD, 2009). By adopting an "apply or explain" approach, King III set an international benchmark (IOD, 2009; Cliffe Dekker Hofmeyr, 2013; IOD, 2012). This approach means that entities need not to fully comply with King III when they, through an "application of the mind", can justify their non-compliance (IOD, 2012).

King III became effective on 1 March 2010 and it places the board of directors at the centre of the implementation of the corporate governance principles of public companies in South Africa (IOD, 2012). In addition King III notes that the board of directors should be responsible for the affairs of the company by determining the company's strategic direction in a lawful and efficient manner in such a way as to ensure that the company is constantly improving its value creation and performance (IOD, 2009). The board should also ensure that the value being created is shared among the shareholders and employees with due regard to the interests of other

stakeholders (IOD, 2009) in order to carry out perform these responsibilities the board should inter alia, ensure the integrity of the financial controls and reports and also ensure that ethical standards are maintained and that the company complies with the laws of South Africa (IOD, 2009).

Principle 2.18 of the King III and S66 (2)(b) of the Companies Act 2008 recommends that the composition of the board of directors should include a balance of power, a mix of executive and independent non-executive directors, with a majority of independent non-executive directors (Cliffe Dekker Hofmeyr, 2013; IOD, 2012). King III further recommends that the board should be composed in such a way as to ensure diversity of experience without compromising the integrity, compatibility, availability and independence of the board (IOD, 2012; Deloitte, 2013).

The important aspect of King III that is relevant to this research study relates to recommendations that the board of directors comprise majority of independent non-executive directors. Both the King III Report on Corporate Governance (2009) and the Companies Act (2008) identify an independent non-executive director as a: director who is not a member of management (a non- executive director) and who is not a substantial shareholder of the company or an officer of or otherwise associated directly or indirectly with a substantial shareholder of the company; has not within the last three years been employed in an executive capacity by the company or another group member or been a director after ceasing to hold any such employment; is not a principal of a professional adviser to the company or another group member; is not a significant supplier or customer of the company or another group member or an officer of or otherwise associated directly or indirectly with a significant supplier or customer;

has no significant contractual relationship with the company or another group member other than as a director of the company; and is free from any interest and any business or other relationship which could, or could reasonably be perceived to, materially interfere with the director's ability to act in the best interests of the company (IOD, 2009).

King III states that the board of directors and in particular the independent non-executive directors play a central role in any corporate governance system and are viewed as a primary means for the shareholders to exercise control over the executive management (IOD, 2012). The standard approach in empirical finance and in modern global corporates involves viewing the board's independence as closely related to both its efficiency and its effectiveness (Huse, 2007). In line with this reasoning, section 303A.01 of the New York Stock Exchange's listed companies manual requires a majority of independent non-executive directors on the board (Rashid, 2011). Independent non-executive directors are viewed as superior monitors because their careers are not linked to the CEO of the firm and consequently they are free to take decisions that may go against the CEO without fear that they may be jeopardising their positions and future compensation (Huse, 2007). This view is often referred to as the monitoring effect theory which is advocated by agency theorists. Independent non-executive directors have incentives to build their reputations as expert monitors in order to obtain additional director appointments (Hillman & Dalziel, 2003). Consequently, they are more likely to maintain proper control over a firm's executive management team (Fama & Jensen, 1983).

Several papers have reported evidence supporting the notion of boards with a majority of independent non-executive directors as recommended by King III and the monitoring effect

(agency) theory. Rosenstein and Wyatt (1994), show that the financial markets demonstrated a significant positive reaction following the announcement of independent non-executive board appointments in the Wall Street Journal. While Weisbach (1988), suggests that CEO turnover is more sensitive to performance in firms with independent non-executive dominated boards than it is in firms whose boards are dominated by executive directors. MacAvoy and Millstein (1999) found that board independence is positively correlated with accounting-based measures of firm performance, while Cotter et al. (1997) showed that boards who comprise a majority of independent non-executive directors receive higher returns as compared to similar firms without such a majority. Brickley et al. (1994) found a statistically positive and significant market reaction following the adoption of a poison pill clause when the board is dominated by a majority of independent non-executive directors. Beasley (1996) and Dechow, Sloan and Sweeney (1996) showed that a higher level of independent non-executive directors on the board decreases the likelihood of the firm's financial statements containing fraudulent information; while, Klein (1998) found that companies with independent non-executive boards are less likely to manage their earnings by reporting abnormal accruals.

On the other hand, Fosberg (1989) found that firms with a large percentage of independent non-executive directors on their board are not characterised by better performance as measured by the firm's ROE. The absence of any relation between the firm's performance and the independence of its board members has also been confirmed by Hermalin and Weisbach (1991), Klein (1998), and Bhagat & Black (2002) and more recently by Hayes, Mehran & Schaefer (2004).

2.4 Board composition and firm performance

Board composition is measured in terms of different degrees of heterogeneity (Bhagat & Black, 2002). Common assessments of board composition include executive and independent non-executive director's ratio, age and gender diversity among board members and board size (Rashid, 2011). There are inconclusive findings as regards the relationship between board composition and firm performance (Finegold, Benson & Hecht, 2007; Bermig & Frick, 2010; & Rashid, De Zoysa, Lodh & Rudkin, 2010). There are several advantages to board heterogeneity as measured by a mix of executive and independent non-executive directors because of enhanced decision making arising from more information; although this would come at a considerable cost (Sanda et al 2011). It is in light of this that Eklund; Palmberg and Wiberg (2009) note that:

> Board heterogeneity is associated with a trade-off between increased costs in terms of longer decision time and lower external costs. That is, a trade-off between increased information efficiency associated with heterogeneous boards and decision efficiency associated with homogenous boards. Heterogeneous boards tend to be better informed regarding issues outside the firm and thereby better equipped to question and discuss corporate strategic decisions, whereas homogenous boards to a larger extent are based on trust, cooperation, as well as shared experience and values.

In respect of composition in terms of the executive and independent non-executive director ratio, the agency theory is in favour of a majority of independent non-executive directors (Huse, 2007; Rashid, 2011). King III notes that, the board should include a balance of executive and non-executive directors, with a majority of independent non-executive directors as this reduces the possibility of conflicts of interest (IOD, 2009). Executive directors serve in at least one of the following categories, namely management of the company or advisers to the company (Davidson

& Rowe, 2004). Sahin, Basfirinci and Ozsalih (2011) observe that previous literature does not contain consistent findings on the impact of proportion of executive and independent non-executive director on financial performance. Pearce and Zahra (1992), Daily and Dalton (1993) and Krivogorsky, (2006) studies suggest that a positive relationship exists between executive and independent non-executive dominated boards and the performance of the company. However some studies have not found significant relationship between the proportion of executive and independent non-executive directors and firm performance (Bhagat & Black (1999), Daily & Johnson (1997) and Dulewicz & Herbert (2004). Finegold, Benson and Hecht (2007) note that:

> The many empirical studies that have examined the impact to the executive and independent non-executive ratio on boards have found no consistent evidence to suggest that increasing the percentage of outsiders on the board will enhance performance. If anything, they suggest that pushing too far to remove insider and affiliated directors may harm firm performance by depriving boards of the valuable firm and industry specific knowledge they provide.

The argument challenging the role of independent non-executive directors is bases on the information asymmetry between executive directors and independent non-executive directors (Rashid, 2011). It is argued that executive directors live in the company they govern and thus, they have better understanding of the business than independent non-executive directors and are better able to make useful decision (Sanda et al. 2011). On the other hand, the independent non-executive directors lack day to day inside knowledge of company and so they may play a reduced control role in the firm (Nicholson & Kiel, 2007; Rashid et al. 2010).

The arguments in favour of increasing the proportion of independent non-executive directors have been based on the agency theory in terms of which such outsider independent non-executive directors are better able to protect the interest of the shareholders by fulfilling important monitoring functions (Bathala & Rao, 1995). It is argued that the executive directors are not be able to monitor the day-to-day activities of the managers effectively since that would mean that they would be monitoring their own operation and this would be operationally impracticable (Huse, 2007).

However this debate will continue as there are no empirical findings to tilt the argument in any particular direction (Rashid, 2011). There are several explanations for the inconclusive results on this relationship between executive and independent non-executive directors and firm performance with one such explanations being that boards that are optimally weighted between insiders and outsiders would result in an insignificant relation (Wu, 2003). Another explanation is that simultaneity between key variables of interest confounds the interpretation of the results in studies that focus on a direct relation (Finegold et al. 2007). Yet another explanation is that performance and board characteristics, such as composition are jointly endogenous and thus, firm performance is a function not of past board independence only but, also a predictor of the future board structure (Panasian, Prevost & Bhabra, 2008).

The literature on corporate governance tends to advocate expanding the independent/outsider elements in corporate boards (Sanda et al. 2011). Thus the literature[5] indicates that board

[5] These literature include, Rosenstein and Wyatt (1994); Weisbach (1988); MacAvoy and Millstein (1999); Krivogorsky (2006).

composition is in some way related to corporate performance. Panasian et al. (2008, p.136) remark that, "despite the inconclusive results of empirical literature on the effectiveness of outsider directors on the board, an international movement advocating greater board independence continues to strengthen".

2.5 Board size and firm performance

A board of directors fulfils various functions (Solomon, 2010). While independent non-executive directors monitor the executive management and advise the CEO on the business strategy, executive directors convey information to the outsiders (Mace, 1971; Lipton & Lorsch, 1992; Jensen, 1993). Much of the literature on board size has called for smaller boards (Wu, 2003). These arguments are based on the notion that smaller groups are more cohesive and more productive, and are able to monitor the firm more effectively than larger groups (Pablo, Valentin, Felix, 2005). On the other hand, larger groups are fraught with problems such as social loafing and higher co-ordination costs, and are thus not good monitors (Rashid, 2011). Lipton and Lorsch (1992) argue that boards comprising eight or nine members are the most effective. According to them, when the board exceeds this optimal size, it becomes difficult for all the board members to express their ideas and opinions in the limited time available at board meetings. Jensen (1993) concurs with this view and states those boards of more than seven or eight members function less effectively and are easier for the CEO to control than smaller boards. Yermack (1996) provides empirical support for these arguments by showing a significant negative correlation between Tobin's *Q* and board size for large United States public firms.

There are, however, certain advantages to larger boards (Wu, 2003). From an agency perspective, it may be argued that a larger board is more likely to be vigilant as regards agency

problems simply because a greater number of people will be reviewing management actions (Nicholson & Kiel, 2003). Mak and Li (2001) showed a significant and positive correlation between Tobin's *Q* and board size for Singapore firms in OLS regression. However, agency theorists recognise that there is an upper limit to boards (Huse, 2007). Jensen (1993) suggests this limit to be approximately eight directors, as a greater number would interfere with group dynamics and inhibit board performance. Alternatively, it may be argued that it is not the size of the board, that is critical, but rather the number of independent non-executive members on the board (Dalton, et al., 1999).

From a resource dependence theory perspective, it may similarly be argued that a larger board offer greater opportunities for more external linkages and hence access to resources (Nicholson & Kiel, 2003). Nicholson and Kiel (2003) note the existence of a variety of studies that argue that boards link a firm to the external environment to secure resources[6]. According to these studies, one of the functions of directors is to provide assistance in obtaining resources from outside of the firm (Nicholson & Kiel 2003). Pfeffer (1972) suggests that the need for external resources such as debt finance would increase the CEO's need for advice and, thus the size of the board of such a firm would probably increase. For example, Booth and Deli (1999) found that firms that require more debt financing are more likely to have a commercial banker on the board as compared to firms requiring less debt financing. Similarly, Ferris, Hagannathan and Pritchard (2000), found a positive and significant correlation between log (board size in 1995) and ratio of market to book value for firms requiring debt financing.

[6] These studies include, Pfeffer and Salancik (1978); Klein (1998); and Hillman, Cannella, and Paetzold (2000).

Dalton et al (1999), maintain that larger boards may offer an exceptional level of high quality advice and counsel to the CEO. Hermalin and Weisbach (1988) suggest that independent non-executive directors serve as potential sources of counsel and add expertise and experience to the board, while Lorsch and McIver (1989) similarly, note that directors consider that one of their key duties during normal times is to advise the CEO. In fact, Adams and Mehran (2003) documents that boards devote significant resources up to 52% of total director meetings to activities that are not traditionally considered to be monitoring activities.

Further evidence of the advisory role of outside directors is provided by Adams and Mehran (2003). They found that as the number of states in which a bank has operations increases, the board size increases, perhaps to accommodate representatives of the subsidiaries from different states (Adam & Mehran, 2003). Agrawal and Knoeber (2001) found that firms that require more political advice have a higher proportion of outsiders with political connections on their board. It is therefore, likely that while smaller boards are more effective at monitoring, board size will increase as the firm's advising requirements grow (Agrawal et al. 2001).

Yermack (1996) suggests that the CEOs of diversified firms may require higher levels of advice, as compared to less diversified firms and that the need for advice may increase with the number of business segments. Thus, in diversified firms, the board should be large enough to accommodate independent non-executive with backgrounds matching the disparate business interests of the firm, and who will be able to advise the CEO on investment opportunities (Yermack, 1996). Yermack (1996) reports a strong inverse relationship between board size and

firm performance as measured by Tobin's *Q*. Bhagat and Black (2002), also reports an inverse correlation found by Yermack (1996) for large United States public firms.

2.6 Summary

Chapter 2 discussed issues found in the literature relevant to the research study, namely, an overview of corporate governance, the agency and resource dependence theories of corporate governance, corporate governance reforms and the King Reports and the link between the composition and size of the board and firm performance. Each of these contributes to an understanding of corporate governance in general, and the nature of a board of directors in particular. Chapter 3 presents the research methodology used in the study.

Chapter III: Research Methodology and Data

3.1Research purpose and research hypothesis

The purpose of this study was to examine the impact of board composition and board size on the economic performance of firms listed on the Johannesburg Stock Exchange in South Africa.

The following research hypothesis was formulated and tested in this study:
As regards board composition, the agency theory suggests that a greater proportion of independent non-executive directors compared to executive directors are able to monitor any self-interested actions on the part of managers and so minimise the agency costs and enhance firm performance (Fama, 1980; Fama & Jensen, 1983).

H_0: There is an insignificant positive relationship between board composition (proportion of outside independent directors) and firm performance in South Africa.

H_1: There is a significant positive relationship between board composition (proportion of outside independent directors) and firm performance in South Africa.

It is acknowledged internationally that board size and firm size are correlated (Dalton et al., 1999; Yermack, 1996). This finding may be explained in terms of at least two of the prevailing governance theories. From an agency perspective, larger companies require a greater number of directors in order to monitor and control a firm's activities (Yermack, 1996). While from a resource dependence perspective, larger and diversified companies require access to a greater

range of resources and thus, such firms will appoint more directors to provide access to those resources (Nicholson & Kiel, 2003). Consequently, the researcher would expect either:

H_0: Board size is not positively correlated with firm performance.

H_1: Board size is positively correlated with firm performance.

3.2 Overview of research method

In the area of both business and management, qualitative and quantitative methods are the methods selected for research data analysis (Leedy & Ormrod, 2010). Data and methodology are inextricably intertwined and for this reason, it is essential that the methodology used in the context of a particular research problem always take into account the nature of the data that will be collected in order to resolve the problem (Leedy & Ormrod, 2010). Bryman and Bell (2007, p.45) noted that "quantitative research can be construed as a research strategy that emphasizes quantification in the collection and analysis of data". According to Trochim (2006), quantitative methods are numerical in form and encompass the confirmatory and deductive approach. During this research study, the researcher used published annual reports as the main source of data and used statistical analysis in order to draw the research conclusion. Leedy & Ormrod (2010) further note that data dictates the research method.

Thus, the study adopted a quantitative approach and used multiple regression analysis (MRA) and analysis of variance (ANOVA) as the primary statistical techniques. This research study may be classified as an empirical study and was concerned with establishing the relationships

between variables (Ryan, Scapens & Theobald, 2002). The variables considered in empirical research may be dichotomised as dependent and independent variables. The independent variables in an experiment are the variables that are manipulated by the researcher; they are in effect the variables that are being studied. The dependent variables measure the response to the manipulation of the independent variables. Thus in an experiment the researcher is interested in determining the impact of the changes in the independent variable upon the dependent variable. The study adopted the quantitative research approach as the study focused on the amounts of one or more variables of interest (Leedy & Ormrod, 2010).

3.2.1 Independent variable

In line with studies conducted in the United States of America (Bhagat & Black, 2002; Coles, McWilliams & Sen, 2001; Daily & Dalton, 1993) the researcher employed two measures of board composition/demographics for the purposes of this study. Firstly, the researcher calculated the size of each board contained in the dataset. Secondly, when collecting the data the researcher classified each director as either an executive (inside) director or an independent non-executive (outside) director. This, in turn allowed the researcher to calculate the percentage of outsiders on each board. However, the researcher acknowledged that this did not allow for the calculation and the presence of "grey/affiliated" directors. For the purpose of this study board composition was defined as the percentage of independent non-executive directors who were members of the board (Rashid et al. 2010). This satisfied the requirements contained in the definition of board composition as stipulated in the King III Report of the Committee on Corporate Governance of Public Companies in South Africa (2009). On the other hand, board size refers to the number of members serving on a firm's board.

3.2.2 Dependent variables

While there are many measures of firm performance for example stakeholder satisfaction and intellectual capital (Clarkson, 1995), the researcher in this study followed the approach adopted by Bhagat and Black (2002) and Nicholson and Kiel (2003) by using three financial measures of firm performance, namely Tobin's *Q*, return on assets (ROA) and return on equity (ROE). The financial measures of a firm's financial performance may be classified into two key categories, namely, accounting based measures and market based measures (Nicholson & Kiel, 2003).

Accounting based measures of performance are historical and thus, are characterised by a more backward and inward looking focus (Cochrane & Wood, 1984) Developed as a reporting mechanism, accounting based measures take into account the impact of numerous factors including the past successes of advice given by the board to the executive management team and are the traditional mainstay of corporate performance measures (Nicholson & Kiel, 2003). Examples of these measures which are used in the governance literature include return on assets (Cochran & Wood, 1984; Hoskisson, Johnson & Moesel, 1994), earnings per share (Pearce & Zahra, 1992), and return on equity (Baysinger & Butler, 1985). In general, however, the major concern with accounting measures is that they are historical and thus they lag behind the actual actions that bring about results (Nicholson & Kiel, 2003).

In contrast, market based measures of a firm's performance relate to the overall value ascribed to the firm by the market (Nicholson & Kiel, 2003). Such measures may not bear any relationship to asset valuations, current operations or even the firm's historical profitability (Muth & Donaldson, 1998). These market based measures emphasise the expected future earnings of the

firm and, thus, they are considered a forward-looking indicator that reflect current plans and strategies. Measures in this category include market to book ratio, Tobin's *Q* (Barnhart et al. 1994) or constructed indices such as the Sharpe measure (Hoskisson et al., 1994).

In view of the strong market efficiency in South Africa (Armstrong, 2004), the researcher followed the lead of Hermalin and Weisbach (1991), Bhagat and Black (2002) and Nicholson and Kiel (2003) in using Tobin's *Q*. in terms of the assumption of a strong market, any positive impacts of board demographics/composition would be readily apparent to the market participants and, thus, they would be reflected in the market capitalisation of the firm (Fama, 1998).

This study used both accounting and market-based measures: As regards the profitability of a firm's assets in terms of generating revenue, net return on assets (ROA) managed was calculated as the ratio of net profit to total assets. While, in order to measure a firm's efficiency in using investment funds to create increased earnings, return on equity (ROE) was calculated as the ratio of net profit to equity. Finally as a market based variable, Tobin's *Q* was calculated. In line with study conducted by Bhagat and Black (2002), Tobin *Q* was denoted as follows:

Tobin's *Q* = (Market Value (Equity) + Book Value (Assets) – Book Value (Equity))/ Book Value (Assets)

3.2.3 Control variables

Statistical predictions may often be improved by the use of more than one independent variable (Van Staden, 1998). Thus, by using control variables in addition to the independent variable, the predictive values of the multiple regression models are increased. The regression results

controlled for a number of factors that could have affected firm performance, board composition or both. The researcher used a number of control variables, including firm size, firm age, market capitalisation and growth as recommended in the study by Bhagat and Black (2002).

3.2.4 Regression model specification

In order to examine the relationship between board composition and firm performance, the following MRA model was developed:

$$\mathbf{Y_{i,t}=\alpha+\beta_1 BDCOMP_{i,t}+\beta_2 BDSIZE_{i,t}+\beta_3 AGE_{i,t}+\beta_4 SIZE1_{i,t}+\beta_5 SIZE2_{i,t}+\beta_6 GROWTH_{i,t}+\varepsilon_{i,t}}$$

Where, Yi,t represents firm performance variables; ROAi,t, ROEi,t, and Tobin's *Q*i,t are for firm i in time t. BDCOMPi,t is the board composition (exec vs. non exec directors), BDSIZEi,t is the board size, and AGEi,t is the firm age. SIZE1i,t and SIZE2i,t represents the firm size measured by revenue and market capitalisation, GROWTHi,t is the firm's growth as represented by the changes in sales, α is the intercept, **β** is the regression coefficient and **ε** is the error term.

MRA is a statistical technique which is used for modelling the relationship between variables. However, it does not imply a cause-and-effect relationship (Montgomery, Peck, & Vining, 2006). The result of MRA is an equation that represents the best prediction of a dependent variable from several independent variables (Coakes & Steed, 2001). There are three major regression models, namely, standard or simultaneous regression, hierarchical regression, and stepwise regression. In the standard or simultaneous regression, all the independent variables enter the regression equation at once because the aim is to examine the entire set of predictors and also the dependent variable. In hierarchical multiple regression, the order of entry of the

independent variables is determined based on theoretical knowledge while, in stepwise regression, the number of independent variables and the order of entry are determined by statistical criteria generated by the stepwise procedure. The choice of technique depends primarily on the researcher's goals (Coakes & Steed, 2001). The standard or simultaneous model was employed for the purpose of this study as the objective of the study was to examine the effect of all the predictors on the dependent variable.

Accordingly, the multiple regression models were be tested for both validity and adequacy using statistical tools such as hypothesis testing using the classical approach, ANOVA analysis, and the coefficient of determination (R^2). Finally, based on the regression models derived, conclusions were drawn as to whether there was a significant positive relationship between board composition and size and firm performance.

However, there are four assumptions that have to be met in order to draw inferences from a regression model. According to Sheather (2009), these include the following, firstly, there must be a linear relationship between the dependent variable/s ($Y_{1\ldots n)}$ and the independent variable/s ($X_{1\ldots n);}$ secondly, the errors must be independent of each other; thirdly, the errors must have a common variance (homoscedacicity); and finally, the errors must be normally distributed with a mean of 0.

In order to ensure the linearity of data by limiting the effect of both outliers and leverage points, the variables Tobin's *Q* was transformed into its natural logarithm form. The transformation of certain variables was necessary as this ensured that the error of variances became constant

(Sheather, 2009). The llinearity of the dependent and independent variables was tested by observing scattergrams of standardised residuals against the predicted values. A non-discernible pattern in the plots of the residuals would indicate that the models were valid.

In order to address the problem of the data collected from one year to the other becoming serially correlated, also termed autocorrelation, the Durbin-Watson statistic calculated in SPSS was observed as autocorrelation would have violated the assumption of the independence of errors. The values of the Durbin-Watson statistic range from 0 to 4 and as a general rule, the residuals are uncorrelated if the value is approximately 2, with a value close to 0 indicating a strong negative correlation and a value of 4 indicating strong positive correlation.

Another critical assumption of regression analysis is that the errors must have constant variance otherwise all the inferential statistics such as p-values, confidence intervals and prediction intervals are rendered invalid (Sheather, 2009). The violation of this assumption is referred to as the heterogeneity of variance or heteroscedasticity (Gamst, Meyers, & Guarino, 2008). It is however, possible to overcome the problem by using methods such the transformation of data in terms of which certain variables are transformed into their square root or natural logarithm forms. In order to test for homoscedasticity, a scatterplot of the standardised residuals was plotted against the firm performance variables. Any pattern formed by the plots would have indicated the existence of heteroscedasticity.

The normality of errors was tested by using a normal probability plot (P-P) of the standardised residuals and histograms of the residuals. Plots in an approximate straight line are assumed to be

evidence of data consistent with that from a normal distribution. A histogram is a conventional solution for the display of interval-ratio data (Cooper & Schindler, 2001) and is used when it is possible to group variable values into intervals. Histograms are constructed using bars with each value occupying an equal amount of area within an enclosed area. Histograms are useful both for displaying all the intervals in a distribution and for examining the shape and distribution for skewness, kurtosis and the modal pattern (Cooper & Schindler, 2001). In the case of a histogram, the empirical distribution of the data should be bell-shaped and resemble the normal distribution.

Lastly, multicollinearity was assured by firstly conducting, the correlation coefficient calculation in Excel, secondly by variance inflation factors (VIFs) and lastly by computing the Eigen Value Collinearity both in SPSS. Multicollinearity is a situation which arises in regression analysis when strong correlations exist between the independent variables. This may result in incorrect regression coefficient signs and statistically insignificant independent variables despite the fact that the F-test may be highly significant. The acceptable cut-off point often used in practice is 5 (Sheather, 2009) as any VIF above 5 is indicative of a strong correlation between the respective variable with this, in turn leading to poorly estimated regression coefficients (Sheather, 2009).

Regression analysis (hypothesis testing) was conducted through SPSS. SPSS provided the following two important regression analysis reports:

1. Model summary;
2. Coefficients.

The model summary consists of R, R^2, adjusted R^2 and the standard error of the estimate. For the purposes of this research study R^2 was used as the tool with which to test the internal validity of

the research study. The internal validity of an experiment is determined by the degree of control that has been achieved in the study. In other words, the greater the control achieved, the higher the internal validity (Ryan et al. 2002). When a study is described as possessing a high internal validity, this is understood to mean that the changes in the dependent variable have been brought about, in the main by changes in the nature of the independent variable (Ryan et al. 2002). The correlation of determination (R^2) is considered to be one of the preferred statistical tests for this purpose.

Firstly, the coefficient of determination is determined by squaring the coefficient of correlation (Julyan & Nel, 2003). For example, if R^2 is around 80% this should be interpreted to mean that 80% of the change in the dependent variable may be explained by the independent variables while 20% of the change in the dependent variable is caused by factors other than the independent variables which were used.

Secondly the t-test may be used. This test measures the statistical significance of each of the regression coefficients, and must be read in conjunction with levels of significance measured as a probability value (ρ-value). The t-test also indicates the direction of the relationship between variables with a positive t-test indicating a positive relationship and a negative t-test indicating a negative relationship. The ρ-value refers to the probability of observing a sample value as extreme as, or more extreme than, the actual value observed, given that the null hypothesis is true. The ρ-value is compared to the level of significance determined above and on this basis the null hypothesis is either rejected or not rejected. If the $\rho < 0.05$ (significance level), the null

hypothesis is rejected while if $\rho > 0.05$ (significance level), the null hypothesis is not rejected. SPSS compute the ρ-value during the execution of the hypothesis test.

The alternative hypothesis holds that there is a relationship between variables. In other words, for the purpose of this study, there is a relationship between board composition and firm performance. The objective of this research study was to establish whether there is a relationship between board composition and firm performance. As a result of the conceptual framework adopted in the study and in line with the hypotheses were formulated, this relationship must be positive. Accordingly, a one-tailed test or directional test was be used. This directional test was a right one-tailed test in order to minimise the possibility of a type II error. This, in turn means that the *t*-statistic calculated must be positive and significant (t is > zero). If it is negative (t< 0) the null hypothesis will not be rejected.

3.3 Population and study sample

According to Thomas, Burnham and Buckland (2004, p.105), a population may be defined as the total set of elements in which the researcher is interested. The size of the population usually renders it both impractical and uneconomical to involve all members of the population in a research project (Welman & Kruger, 2001). Accordingly, samples are drawn for investigation. Defining the population that is to be studied is an important prelude to drawing samples from it (Thomas et al. 2004). Thus, the research objectives and scope of the study are critical in defining the target population that will be studied (Hair, Bush & Ortinau, 2003).

Based on the population which has been defined it is then necessary to define the sampling frame as “the sampling frame provides a working definition of the target population” (Hair et al, 2003,

p.211). The sampling frame takes into account practical issues relating to the availability of information. An accurate sampling frame is extremely important as it helps to reduce bias and to ensure that the sample used truly represents the population from which it is taken (Zikmund, 2003). For the purpose of this study the sample frame was defined as all JSE listed companies with the results of the operations of these companies for the 2006 to 2012 financial years being used in the study.

3.4 Sample size and selection of sample

Of the total companies (1861) listed on the JSE from 2006 to 2012 and found on the OSIRS financial database, the researcher used all the companies from across all industrial sectors and listed on the JSE from 2006 to 2012.

3.5 Data sources

In view of the difficulty involved in acquiring information from private companies, it was decided to limit the study to public companies that are listed on the JSE Securities Exchange. For the purposes of this study, the extent of firm performance was measured using the statutory annual reports. Thus, the data used in the study was collected from the published annual reports of companies listed on the JSE Securities Exchange from the 2006 to 2012 fiscal years. The primary source of information for the study was the secondary database from OSIRIS, which supplies both real-time and historical fundamental information on South African listed companies.

3.6 Collection of data

The data was sourced from the published annual reports on each company's website and was downloaded from the OSIRIS financial database directly into Microsoft Excel. The data was collected in May and analysed from June 2013 with the first research report draft being ready at the end of December 2013.

3.7 Data management

The data collected from the OSRIS financial database was downloaded in Excel workbooks containing seven worksheets each representing a financial year end. These workbooks were managed by storing them on a laptop and backing them up on an external hard drive**.**

3.8 Data analysis

Data is of little or no value merely as data (Leedy & Ormrod, 2010). Thus, data analysis is an essential element in an empirical research. The process of data analysis may take takes several forms, depending on the nature of the research question and research design, and on the nature of the data itself (Bless, 2006). This study encompassed an empirical research design and thus quantitative primary data was collected for the purpose of the study. The data analysis tools which were deemed to be the most appropriate for the study were statistical analysis techniques using SPSS statistical software package. The most common of these statistical analysis techniques are descriptive statistical tools and inferential statistical tools.

Descriptive statistics are statistics which are used to describe or summarise information about a population or sample (Zikmund, 2003). Descriptive statistics uses a wide range of techniques to describe the sample being investigated. The techniques employed include standard deviation

correlations, factor analysis and frequency counts with each technique extracting a somewhat different meaning from a set of data (Leedy & Ormrod, 2010). On the other hand, inferential statistics enable the researcher to make inferences or predictions about large populations by using the data collected, from observation and analysis on a relatively small sample (Leedy & Ormrod, 2010).

The statistical analysis in the study was conducted by a statistical consultant at the University of the Witwatersrand. A descriptive analysis was conducted using basic frequency tabulations with measures of central tendency and dispersion such as means, standard deviations and ranges and graphic material in the form of histograms, normal P-P plots and scattergrams to describe the sample. For inferential statistics, the study used the multiple regression analysis to evaluate the relationships between these measures of firm performance and board composition.

Both parametric (where data is transformed) and non-parametric (where data in not transformed) methodology was employed. The multiple regression models was run using the standard or simultaneous model, as the objective of the research study was to examine the effect of all the predictors on the dependent variable. For the purpose of this study various options of multiple regressions were run, including fixed effects, random effects, ordinary least squares (OLS), generalised least squares (GLS) and a dynamic panel. The most robust of all was the OLS and, thus, the tables below present the results of the OLS regression.

3.9 Validity and reliability

3.9.1 Validity

Validity encompasses both external and internal validity (Leedy & Ormrod, 2005). According to Bryman and Bell (2007) validity is an important criterion in research and "validity is concerned with the integrity of the conclusions that are generated from a piece of research". Thus, validity refers to whether the researcher is observing, identifying, or measuring data which coincides with what he/she should do (Bryman & Bell, 2007).

According to Bryman and Bell (2007), there are four types of validity, namely, measurement validity, internal validity, external validity and ecological validity. Measurement validity relates to the issue of whether or not an indicator that has been devised to estimate a concept does, in fact, measure that concept while internal validity relates to whether a conclusion which has been drawn incorporates a causal relationship between two or more variables (Bryman & Bell, 2007). On the other hand, external validity refers to whether it is possible to generalise an outcome of a specific beyond the specific research and, finally, ecological validity is concerned with social environment, social settings and people's routine life (Bryman & Bell, 2007).

As regards this study, the researcher focused primarily on measurement validity in terms of using different control variables and endeavoured to examine whether each control variable was able to reflect an association with firm performance. However, the internal validity was reflected in the correlation test between different variables in order to examine the relationship between them. Thus, various regression diagnostics including a, test for normality, heteroscedasticity and multicollinearity were carried out to enhance internal validity of the regression model. The

researcher is of the opinion that the data was valid. All data used was extracted from the audited and published annual reports of the companies and these reports are characterised by a high level of both credibility and accountability.

3.9.2 Reliability

Reliability involves whether the results of a study are repeatable, and it is particularly relevant in quantitative research (Bryman & Bell, 2007). All the data for the purposes of this study was collected from audited published annual reports, and the researcher was sure this would ensure in a high level of reliability. The regression model used had been tested by prior researchers and was deemed a mature model. The use of SPSS statistical software package ensured that the processing of the data was accurate, controllable and reliable. Thus, the researcher is convinced of the transparency, relevance and reliability for this dissertation.

3.10 Assumptions and delimitations of the study

3.10.1 Assumptions

It was assumed that the total number of firms included in the sample was sufficient to ensure adequate data on corporate financial reporting and performance and also that the corporate governance information was communicated candidly and truthfully by the firms. False data would have had a detrimental effect on the study's results.

3.10.2 Delimitations

The study used public listed companies on the Johannesburg Stock Exchange only and focused on the Code of Governance Principles for South Africa 2009. Thus, detailed data on the budgets and forecasts of specific business units was not discussed.

3.11 Summary

The objective of this research study was to establish whether board composition and board size is associated with, or is able to explain firm performance. Thus, using statistical terminology, the aim of the research study was to explain or predict a dependent variable (firm performance) from a set of independent variables (board composition and board size) and control factors. Multiple regression analysis was selected for this purpose. Regression results provide information on the statistical significance of the independent variables, the strength of the association between one or more of the predictors, and a predictive equation for future use. The information provided by the regression analysis clearly enabled the aims and objectives of this research study to be realised. The next chapter discusses the results of the OLS regression models. This is followed by a summary and conclusion of the research study.

Chapter IV: Results and Discussion

4.1 Introduction

The objective of this chapter is to explore, display and examine the data which was collected. The chapter discusses the descriptive statistics applied to the primary variables, describes the statistical results of the multiple regression analysis conducted for each firm performance variable and determines whether the hypotheses are to be accepted or rejected. The regression equations were tested at a 5% confidence level.

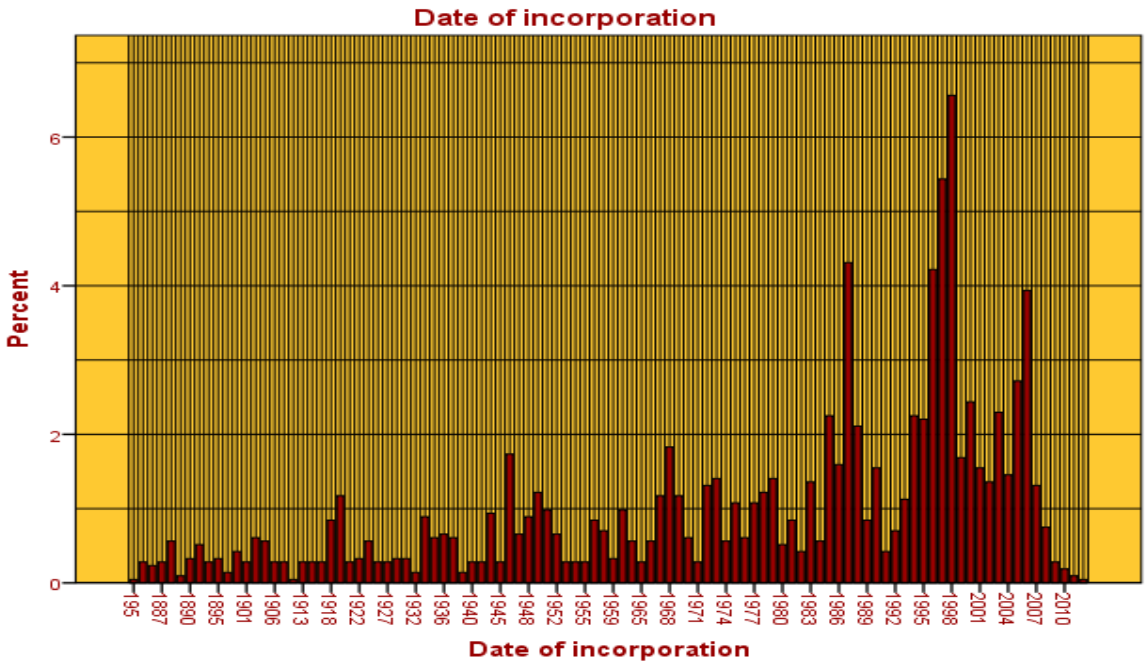
4.2 Descriptive statistics

Descriptive statistics are used to summarise information about a population (Zikmund, 2003) by conveying more precise information about the behaviour of the random variables through the measures of central location (mean and median) and dispersion (standard deviation and range) (Wegner, 2001). These measures reduce huge volumes of data to a simpler format to enable the understanding of a population sample.

The first King Report (1994) (King I) was instrumental in raising the awareness of what constitutes good governance, both in the private and public sectors (Malherbe & Segal, 2001). The report offered to both companies and state-owned enterprises, for the first time, a coherent and disciplined governance framework that was relevant to local circumstances and which offered practical guidance (Armstrong, 2004). The listing requirements of the former Johannesburg Stock Exchange (JSE), now known as the JSE Securities Exchange South Africa, were comprehensively revised, first in 1995 and again in 2000, to incorporate both King I and II recommendations on Corporate Governance in order to ensure that rules governing companies

listed and to be listed on JSE remained in line with international best practice. It is evident from Figure 4.1 below that the majority of the companies were listed between 1994 and 2007 with more than 60% being incorporated in 1998 following the release of King I & II reports.

Figure 4.1: Date of incorporation/listing on JSE



The researcher identified the following Financial Times (FT) industrial classes which are in line with the classification as noted in the manual guideline of the StatsSA (2012):

- Agriculture & Fishing
- Construction
- Diversified Holding Companies
- Financial Services & Real Estate
- Health Care
- Hotels & Restaurants
- Manufacturing
- Mining and Extracting industries
- Telecommunications & Electronics
- Transport Services
- Wholesale & Retail Trade

Figure 4.2 and Table 4.1 below depicts the bar graph and a total sample of 1861 for the 11 industrial classes of firms listed on the JSE from 2006 to 2012. Financial Services and Real Estate comprise 29% of the total sample, thus clearly showing the significant influence of these two industries on the South African capital markets. This is followed by the Manufacturing and Telecommunications and Electronics industries at 14% respectively. Agriculture and the Transport Services industry are the lowest ranked in the sample representing 1% of the total sample only.

Figure 4.2: Financial Times (FT) industrial class

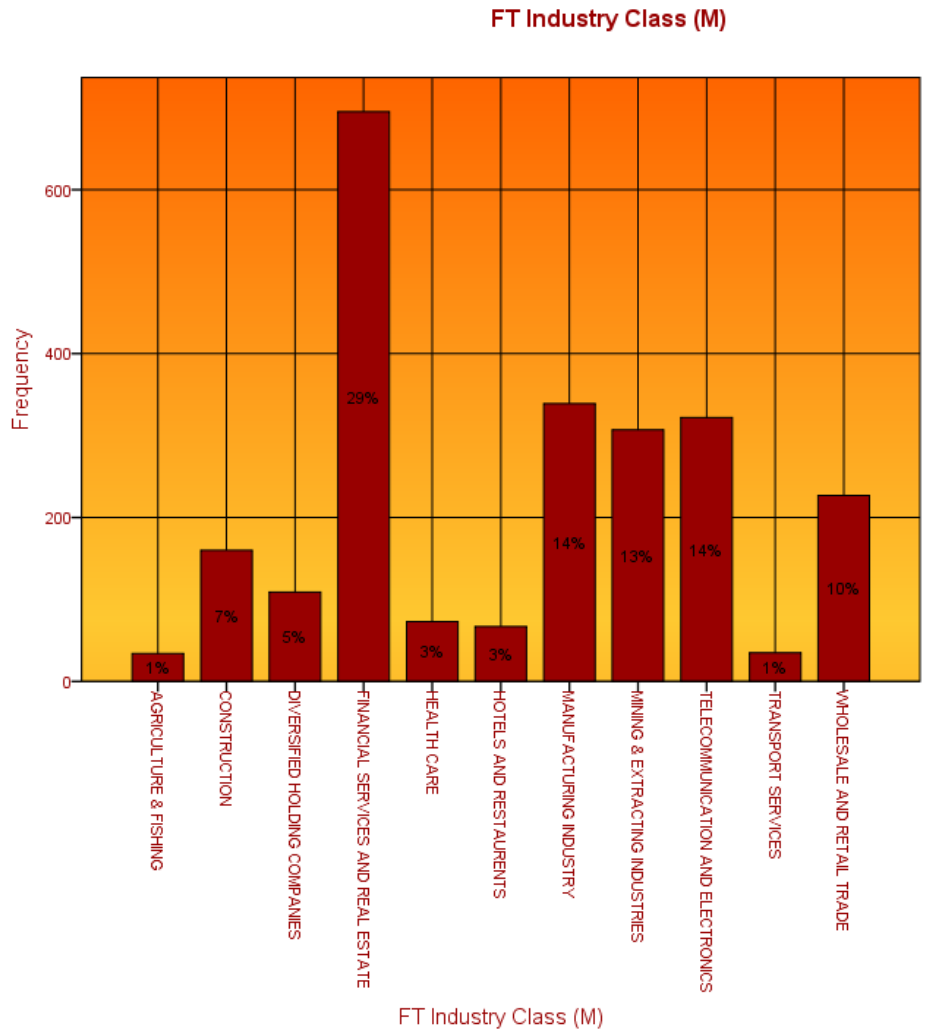


Table 4.2 and Table 4.7 below depict that the mean percentage of independent non-executive directors on the boards of directors of South African companies listed on the JSE Securities Exchange before King III was 50% while, after King III this figure went up to 53% with a median of 57%. These results are consistent with findings of Vafas and Theodorou (1998) who reported that of the 250 publicly listed firms surveyed, the percentages of independent non-executive and executive directors on the boards of directors were 61% and 39% respectively. Mitchell Williams (2000) observed that the representation of independent non-executive and executive directors on the boards of South African publicly listed companies was evenly divided. However, it should be noted that this research study was conducted after the implementation of King III and that King III recommends for a greater percentage of independent non-executive directors on a board of directors than executive directors (Cliffe Dekker Hofmeyr, 2013).

Of all the firms included in this study Table 4.7 below depicts that, the mean board size was approximately 12.87 before King III, rising marginally to 13.54 after King III, thus, suggesting that the boards of firms in South Africa are of a relatively larger size. With a maximum board size of 24 and a standard deviation average of 4, it is clear that the boards of firms in South Africa are of a relatively similar large size. According to researchers such as Pfeffer and Salancik (1978) and Burt (1980) large boards are essentially good for firm performance as they argue that large board sizes are associated with positive corporate performance. Table 4.7 shows that, the mean company age was 39 years before King III but relatively lower after King III at 36 years.

The findings of the descriptive research study confirm both agency and resource dependence theory in supporting the proposition that independent non-executive directors have a significant

impact on firm performance (Pfeffer & Salancik, 1978; Wang & Dewhirst, 1992). Rosenstein and Wyatt (1994) found that the addition of an independent non-executive director to the board of directors resulted in the company's earning a positive excess return. This, in turn suggests that the shareholders of a company view the appointment of a non-executive director as possessing intrinsic value. The descriptive statistics explain the findings of the study that there were a greater percentage of independent non-executive directors on the boards of South African companies listed on the JSE for the 2006 to 2012 fiscal years as compared to the percentage of executive directors, thus, complying with King III recommendations on board composition.

Table 4.1: Between-subjects factors

		Value Label	N
Year (King)	1.00	**2006**	**171**
	2.00	**2007**	**271**
	3.00	**2008**	**295**
	4.00	**2009**	**283**
	5.00	**2011**	**270**
	6.00	**2012**	**300**
	7.00	**2010**	**271**
FT Industry Class (M)	AGRICULTURE & FISHING		**29**
	CONSTRUCTION		**140**
	DIVERSIFIED HOLDING COMPANIES		**81**
	FINANCIAL SERVICES AND REAL ESTATE		**415**
	HEALTH CARE		**67**
	HOTELS AND RESTAURENTS		**62**
	MANUFACTURING INDUSTRY		**297**
	MINING & EXTRACTING INDUSTRIES		**250**
	TELECOMMUNICATION AND ELECTRONICS		**279**
	TRANSPORT SERVICES		**32**
	WHOLESALE AND RETAIL TRADE		**209**
Listed/unlisted/delisted	Delisted		**136**
	Listed		**1725**

Table 4.2: Descriptive statistics

	Year	N	Mean	Median	Std. Deviation	Minimum	Maximum	Kurtosis	Skewness
Operating Rev./Turnover th LCU	2006	316	4887385.17	529080.00	13630991.364	0	163903000	63.330	6.689
	2007	335	5085360.83	651267.00	12281862.261	0	99171000	24.760	4.492
	2008	348	6133760.60	773257.00	14888322.426	0	130578000	27.305	4.638
	2009	341	6404616.87	845948.00	15638346.010	0	138857000	28.503	4.737
	2010	326	6557242.72	941757.50	15580301.154	0	123110000	24.497	4.448
	2011	322	7630414.30	1029317.00	17420692.997	-84900	143524000	23.565	4.316
	2012	300	12278419.31	1899239.50	26939581.826	-78000	170862000	16.877	3.846
	Total	2084	6401111.05	837608.00	15790442.496	-84900	170862000	31.451	4.916
Total Assets th LCU	2006	323	16660893.18	747321.00	81365792.051	141	968455000	74.098	7.979
	2007	342	18671935.98	975851.00	95956198.284	113	1182126000	81.494	8.409
	2008	355	20715914.82	1038929.00	113462711.527	78	1503653000	99.893	9.302
	2009	348	20361506.18	1210693.50	104624458.605	0	1292506000	83.229	8.564
	2010	336	22299380.94	1220426.00	110677557.280	0	1332409000	77.570	8.242
	2011	333	24743629.78	1461863.00	118436716.027	44	1492829000	84.881	8.460
	2012	331	22660531.58	2359736.00	85717817.382	34392	769765000	60.971	7.367
	Total	2136	20684849.18	1153385.50	104065671.225	0	1503653000	88.814	8.694
Shareholders Funds th LCU	2006	323	2803046.34	305770.00	7669422.734	-647087	54708000	19.968	4.295
	2007	342	3094035.13	401975.00	8793882.461	-686027	68506000	24.477	4.727
	2008	355	3594024.28	459942.00	10613789.139	-794067	99501000	34.600	5.416
	2009	348	3836203.45	501168.50	10879132.946	-36567	99369000	32.925	5.281
	2010	336	4270336.90	551578.50	11962981.551	-744500	103198000	30.221	5.093
	2011	333	4990397.12	693734.00	13638596.466	-28132	117533000	30.484	5.071
	2012	312	6879785.38	976674.00	17061873.834	-72797	125234000	25.549	4.569
	Total	2136	3910185.20	503184.50	11171479.571	-794067	125234000	35.743	5.379
Net Income th LCU	2006	323	648033.80	60049.00	1976384.840	-525000	19169000	34.409	5.320
	2007	342	721691.36	84593.50	2096627.530	-1405500	17030000	27.412	4.858
	2008	355	830006.00	58696.00	3375858.444	-1730790	45330000	93.779	8.500
	2009	348	614444.56	47102.50	2570409.139	-1507218	37458000	127.072	9.908
	2010	334	636993.78	54195.50	2120918.515	-8676000	15941000	25.037	4.283
	2011	332	844533.46	63224.00	2776010.519	-1972973	21527000	29.961	5.186
	2012	311	1113123.31	137818.00	3070603.439	-921000	23583000	32.487	5.195
	Total	2133	735092.56	61684.00	2570627.192	-8676000	45330000	81.540	7.388
Market Cap. th LCU	2006	200	10020565.00	1780089.71	24960374.164	768	184595599	21.570	4.343
	2007	311	8558624.60	1136139.75	24215403.642	4800	238806003	38.521	5.599
	2008	334	7150983.72	615662.66	25714774.349	1821	307601105	74.892	7.889
	2009	328	7607552.98	617051.24	23022794.260	4074	216996848	37.972	5.689
	2010	322	9200277.93	837019.81	26651454.931	3259	253128435	35.131	5.441
	2011	320	10500888.32	1097461.98	30209222.747	2537	270903959	33.432	5.356
	2012	310	14243027.17	1781150.66	31469611.942	20625	220753259	21.712	4.150
	Total	1913	9026733.72	972247.01	26274454.106	768	307601105	39.873	5.709
Return on Shareh. Funds (%)	2006	309	32.51	30.25	80.609	-738	547	44.414	-3.653
	2007	334	28.33	27.62	69.214	-821	329	87.955	-7.158
	2008	347	16.96	20.61	87.769	-617	983	55.431	1.369
	2009	338	13.02	15.23	74.319	-703	546	42.040	-1.465
	2010	322	7.37	14.60	87.963	-864	435	51.857	-5.277
	2011	317	11.63	16.29	52.071	-387	219	17.176	-2.571
	2012	318	22.51	18.89	37.215	-62	289	28.002	3.808
	Total	2061	18.42	20.15	75.533	-864	983	56.935	-2.823
Return on Total Assets (%)	2006	313	13.45348	12.38000	15.039738	-85.910	59.790	7.426	-.949
	2007	339	12.31693	12.07000	13.888562	-68.610	63.010	6.362	-.875
	2008	349	8.25616	8.65000	18.215318	-87.710	79.400	6.174	-.902
	2009	342	5.86061	6.48500	15.858898	-63.710	79.090	5.204	-.645
	2010	329	4.17979	6.13000	18.810452	-98.880	90.050	10.803	-1.861
	2011	327	5.90211	6.36000	16.652353	-88.530	93.160	8.557	-1.104
	2012	97	8.89196	9.26000	11.679615	-42.820	46.120	4.128	-.725
	Total	2096	8.32050	8.66000	16.636917	-98.880	93.160	7.931	-1.159
Return on equity (ROE) %	2006	300	31.03530	24.60000	96.535257	-988.330	771.400	55.072	-2.142
	2007	311	27.86318	22.43000	58.876006	-304.440	568.890	36.879	3.641

	2008	315	15.67657	17.25000	42.584522	-289.550	225.960	12.362	-1.137
	2009	285	9.41989	10.61000	63.053721	-390.720	577.240	34.193	1.552
	2010	294	11.32881	10.92000	55.532387	-260.100	579.550	42.296	3.587
	2011	287	7.60251	11.32000	75.005864	-374.770	859.310	62.053	4.031
	2012	296	2.33356	13.66000	103.127855	-911.760	130.550	73.908	-8.273
	Total	1879	16.66548	16.27000	69.811689	-988.330	859.310	69.107	-.515
Sales th LCU	2006	282	4379448.68	501310.00	13354557.818	0	160537000	71.733	7.326
	2007	301	4571490.13	581232.00	11849450.329	0	98532000	30.886	5.071
	2008	315	5590980.22	702745.00	14447380.741	0	129943000	33.109	5.152
	2009	303	5935220.00	840488.00	15262905.315	0	137836000	34.147	5.237
	2010	289	6099230.76	909361.00	15316513.148	0	122256000	28.165	4.828
	2011	290	6960271.47	989354.00	17090243.737	0	142436000	27.568	4.742
	2012	314	12265069.41	2173549.50	27408385.481	-15694	169446000	16.594	3.851
	Total	1868	5905265.53	792709.50	15535033.578	-15694	169446000	36.041	5.354
Independent Non Exec	2006	323	4.06	4.00	2.529	0	13	.310	.596
	2007	342	7.41	7.00	3.322	1	18	.107	.585
	2008	355	7.30	7.00	3.387	0	18	.222	.473
	2009	349	7.40	7.00	3.310	0	18	.235	.529
	2010	336	7.52	7.00	3.212	1	18	.253	.654
	2011	333	7.53	7.00	3.313	0	18	.137	.576
	2012	311	8.14	8.00	3.169	2	16	-.500	.398
	Total	2137	6.95	7.00	3.423	0	18	.122	.509
Exec Directors	2006	323	6.21	6.00	2.871	1	17	1.762	1.140
	2007	342	6.32	6.00	2.882	1	18	2.164	1.229
	2008	355	6.24	6.00	2.987	0	18	1.850	1.052
	2009	346	6.39	6.00	2.904	1	18	1.974	1.200
	2010	336	6.36	6.00	2.922	0	18	2.575	1.332
	2011	332	6.34	6.00	2.939	0	18	2.327	1.287
	2012	337	6.62	6.00	3.219	1	18	1.307	1.170
	Total	2133	6.33	6.00	2.930	0	18	2.030	1.199
Board Size	2006	323	10.27	10.00	4.112	2	24	.362	.672
	2007	342	13.73	13.00	4.964	4	28	-.075	.527
	2008	355	13.55	13.00	5.104	0	28	.048	.414
	2009	349	13.73	13.00	4.972	4	28	-.077	.546
	2010	336	13.88	13.00	4.944	4	28	-.057	.597
	2011	333	13.85	13.00	5.047	0	28	-.071	.533
	2012	335	14.76	14.00	5.378	4	28	-.667	.339
	Total	2137	13.27	13.00	5.060	0	28	-.044	.535
Percentage of Independent Non Exec	2006	323	37.94178	40.00000	18.136509	.000	87.500	.021	-.119
	2007	342	53.58536	54.77273	13.308749	9.091	87.500	.504	-.517
	2008	355	53.36014	55.55556	15.391468	.000	100.000	2.163	-.851
	2009	349	53.82597	55.55556	14.844084	.000	120.000	2.749	-.445
	2010	336	54.10005	55.55556	12.792446	16.667	100.000	.852	-.186
	2011	333	54.03771	55.55556	13.339152	.000	100.000	1.719	-.684
	2012	331	55.70619	57.14286	10.640636	29.412	75.000	-.093	-.461
	Total	2137	51.47244	53.84615	15.632634	.000	120.000	1.338	-.687
Tobin's Q	2006	323	2.37174	1.12144	15.827946	.000	248.819	200.286	13.793
	2007	342	2.00502	1.48108	5.638739	.000	102.885	302.856	16.944
	2008	355	1.71807	1.08547	8.242619	.000	155.743	347.295	18.538
	2009	349	1.62653	1.04528	7.945544	.000	148.876	341.828	18.397
	2010	336	1.42703	1.08866	2.448131	.000	43.488	261.940	15.308
	2011	333	2.61709	1.14127	16.591778	.000	281.868	248.849	15.323
	2012	331	1.53540	1.26658	.922552	.000	6.100	6.822	2.248
	Total	2137	1.93371	1.15245	10.408080	.000	281.868	456.422	20.285
Company Age	2006	323	39.08	27.00	30.573	6	151	.861	1.266
	2007	342	42.76	26.00	100.955	5	1818	282.371	16.062
	2008	355	37.05	26.00	30.317	5	151	1.152	1.350
	2009	349	36.75	26.00	30.582	4	151	1.132	1.353
	2010	336	36.63	26.00	30.811	3	151	1.002	1.319
	2011	333	36.23	25.00	31.243	1	151	.945	1.296
	2012	331	39.27	28.00	29.367	0	118	-.029	.913
	Total	2137	38.13	26.00	49.172	0	1818	803.490	22.515

4.3 Regression diagnostics

Before the statistical analysis may be conducted, it is important to ensure that the underlying assumptions of correlation and regression analysis are in place. Regression diagnostics refers to the tests which are performed on data to ensure that the resultant models do not violate the assumptions of regression analysis. According to Sheather (2009), multiple regression analysis is underpinned by following four underlying assumptions: firstly, there must be a linear relationshp between the dependent variable/s ($Y_{1...n)}$ and the independent variable/s ($X_{1...n);\ (2)}$; secondly, the errors must be independent of each other; thirdly, the errors must have a common variance (homoscedasticity); and lastly, the errors must be normally distributed with a mean of zero (0).

Assumptions one and three on linearity and the common variance of errors were tested using scattergrams (see Appendix 1). The scattergrams for the three performance variables, namely, TOB, ROA and ROE showed no discernible pattern in the values plotted. Thus, this demonstrates that the data did not violate the assumptions of MRA in as far as linearity and variance of errors were concerned. Any discernible patterns would have indicated an uneven distribution of the residuals about the regression line.

The second assumption to the effect that the errors must be independent of each other was tested by computing the Durbin-Watson for each performance variable. The statistics came out as part of the SPSS package output and are summarised in Appendix 2 below. All the regression models had Durbin-Watson statistics in the range >1 and <3 thus suggesting that there was no correlation between the variables. The values of the Durbin-Watson statistic range from 0 to 4 and as a

general rule, the residuals are uncorrelated if the value is approximately 2, with a value close to 0 indicating strong negative correlation and a value of 4 indicating strong positive correlation.

Multicollinearity testing was performed on the ROA and ROE ratios, as both uses a measure of income to determine a return on the resources used to produce this income. Gujarati and Damodar (2003, p.361) suggest the following three principal multicollinearity tests, namely, a correlation coefficient between the two variables, a variable inflation factor (VIF), and Eigen values. The results of the three tests are presented in table 4.8. The correlation coefficient was calculated using Microsoft Excel, and displayed a 7% correlation between the two variables while the VIF values were calculated using SPSS software, with all values reflecting less than 10 and therefore providing no evidence of multicollinearity. Finally all the Eigen values, which were calculated using SPSS, displayed values well below the guideline of 100-1000, reflecting thus no multicollinearity.

The fourth and last assumption of MRA that the errors must be normally distributed with a mean of zero (0) was tested by observing the histograms and normal probability plots of the residuals (see Appendix 1). In order to assess the normality of the performance variables, a histogram was generated and visually examined for normal distribution (Appendix 1). Where the data was not normally distributed, the observations were logged using natural logarithms. Histograms were generated again and analysed using the transformed data. In all cases the resulting data was found to be normally distributed. The data transformed included Tobin's *Q* to (logtobinq) with a visual inspection of the histograms revealing that the data for all the governance variables followed a normal distribution while the normal probability plots showed that all the data points

were in an approximate straight line. It was therefore evident that both graphs displayed evidence of data normality.

4.4 OLS regression results

Table 4.3 presents the regression results of the relationship between Tobin's *Q* (TOB) and the governance variables. The results clearly indicated a mixed result between the independent and control variables and this performance variable.

The coefficient for the percentage of independent non-executive directors, although displaying a positive relationship with TOB, was insignificant as measured by the *t*-statistic of 0.774 ($p>0.05$). Thus, on the basis of the results the alternate hypothesis was rejected, namely, that there was a significant positive relationship between the percentage of non-executive directors on the board of directors of publicly listed companies in South Africa and firm performance. The results imply that when there were more external board members, the performance of the firm tended to deteriorate. However, this contradicts the findings of other empirical studies by Weisbach (1988), Byrd and Hickman (1992), and Brickley et al. (1994) on independent non-executive directors promoting the beneficial monitoring and advisory functions to firm shareholders. In addition, Baysinger and Butler (1985) and Rosenstein et al (1994) showed that the market rewards firms for appointing outside directors. On the other hand, this is consistent with the findings of Agrawal and Knoeber (1996) who suggest that boards expanding for political reasons often resulted in too many outsiders on the board and this, in turn, did not improve performance. The low level of significance between the percentage of non-executive directors on the board of directors and firm performance is also consistent with evidence

supporting the managerial hegemony theory (Bhagat & Black, 2002). Thus, it should be indicated that this variable is not significant as regards TOB.

Similarly, to the percentage of independent non-executive directors, the coefficient for the board size, although displaying a positive relationship with TOB, was insignificant as measured by the *t*-statistic of 1.521 ($p>0.05$). In line with the findings of studies conducted by Jensen (1993), Lipton and Lorsch (1992) and Yermack (1996), this study showed that the larger the size of the board, the worse the Tobin's *Q*. This also confirms studies that support the view that larger boards may be overwhelmed by poor internal communications and decision-making processes (Yermack, 1996). In addition larger boards may also develop fractions and coalitions that lead to group conflict while also displaying a tendency to react slowly and indecisively in a crisis (Huse, 2007). Furthermore, the argument had been advanced that larger and diverse boards may be more easily manipulated than smaller boards on the grounds that it is easier for the CEO to gain dominance over the board through various manipulation techniques such as coalition building (Huse, 2007). Thus, board size is not significant in explaining Tobin's *Q* for firms in South Africa and therefore, the alternate hypothesis is rejected.

The study also suggested that the size of the firm as measured by revenue and assets had a negative impact on Tobin's *Q* although not significant as measured by the *t*-statistic of -0.163 ($p>0.5$). These results are consistent with findings of Nicholson and Kiel (2003), who found that firm size, as measured by revenue and assets is inversely related to the three year average Tobin's *Q*. This may, however, be explained by the fact that the size of a firm as measured by its revenue and asset base does not necessarily enhance performance if the revenue and assets are

not put to efficient use (Kyereboah-Coleman & Biekpe, 2005). The implication was therefore that most firms in South Africa were not utilising their size in order to enhance their performance. It is of interest that the co-efficient of Hotels and Restaurants industry displayed a significant positive relationship with Tobin's *Q* as measured by the *t*-statistic of 2.870 ($p<0.05$). However, this may be attributed to the booming tourism industry in South Africa with most tourists taking advantage of the world class hotels and restaurants in South Africa (Roelofse, 2013). Diversified Holding Companies, Financial Services and Real Estate, Transport Services and Telecommunications industries all displayed a negative but significant relationship with Tobin's *Q*. while the co-efficient of Market Capitalisation and Return on Shareholder Funds displayed a significant positive relationship with Tobin's Q as measured by *t*-statistic of 14.192 ($p<0.05$) and 5.302 ($p<0.05$) respectively. The results are consistent with the findings of Nicholson and Kiel (2003) who postulated a significant positive correlation between market capitalisation and TOB. The coefficient for King III, although displaying a negative relationship with TOB, was significant as measured by the *t*-statistic of -7.151 ($p<0.05$). This in turn demonstrates the influence King III recommendations on the firms listed on the JSE though the recommendations of King III are on a "apply or explain" basis hence the negative relationship.

Table 4.3: OLS dependent variable: logtobinq

Model – Equation 1		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.058	.067		15.887	.000
	Operating Rev./Turnover th LCU	7.325E-009	.000	.356	1.099	.272
	Total Assets th LCU	-7.522E-011	.000	-.012	-.163	.871
	Shareholders Funds th LCU	-1.729E-008	.000	-.530	-9.434	.000
	Net Income th LCU	2.858E-010	.000	.002	.063	.950

Market Cap. th LCU	7.951E-009	.000	.633	14.192	.000*
Return on Shareh. Funds (%)	.001	.000	.112	5.302	.000*
Sales th LCU	-6.507E-009	.000	-.309	-.991	.322
Exec Directors	.004	.009	.036	.496	.620
Percentage of Independent Non Exec	.001	.001	.036	.774	.439
AGRICULTURE & FISHING	-.053	.060	-.019	-.886	.376
CONSTRUCTION	-.080	.033	-.062	-2.422	.016
DIVERSIFIED HOLDING COMPANIES	-.139	.039	-.083	-3.529	.000
FINANCIAL SERVICES AND REAL ESTATE	-.103	.026	-.127	-3.916	.000
HEALTH CARE	.053	.042	.029	1.250	.212
HOTELS AND RESTAURENTS	.126	.044	.066	2.870	.004*
MANUFACTURING INDUSTRY	-.049	.028	-.053	-1.780	.075
MINING & EXTRACTING INDUSTRIES	-.013	.029	-.013	-.429	.668
TELECOMMUNICATION AND ELECTRONICS	-.077	.028	-.081	-2.746	.006
TRANSPORT SERVICES	-.190	.057	-.073	-3.360	.001
Class=Listed	.008	.027	.006	.297	.767
King 3 Indicator	-.101	.014	-.149	-7.151	.000**
Board Size	.007	.005	.100	1.521	.128

a. R Squared = .229 (Adjusted R Squared = .220)

In table 4.4 depicts that, with the exception of Net Income, Market Capitalization and Return on Shareholders' funds measured by *t*-statistics of 7.292, 5.165, and 35.187 respectively all with ($p<0.05$). The other entire independent and control variables did not play a significant role as regards affecting firm profitability in terms of ROA.

Like Tobin's *Q*, and as measured by *t*-statistic of .215 ($p>0.05$) board composition also has a positive but insignificant impact on firm profitability, thus emphasising the fact that the independence of a board is not really critical for the effective performance of any firm. The results of this study are consistent with the findings of earlier studies, for example, studies conducted by Rechner and Dalton, (1986), Fosberg, (1989), Barnhart et al, (1994), Grace,

Ireland, and Dunstan (1995), Dalton et al, (1998); Dalton and Daily, (1993), and Cho and Kim (2007), thus implying that board composition in the form of outside independent directors does not influence the economic performance of a firm. Despite the fact that studies by Fama and Jensen (1983), Baysinger and Butler (1985), and Baysinger and Hoskinsson (1990), have asserted that the effectiveness of a board depends on an optimal mix of executive and non-executive directors, there is very little theory on the determinants of an optimal board composition (Hermalin & Weisbach, 2003).

As in the case of Tobin's *Q*, the size of the board is also positively related to ROA although not significantly as measured by a *t*-statistic of .815 ($p>0.05$), thus suggesting that firms in South Africa should have smaller boards. This is consistent with the findings of other researchers, for example, Jensen (1993) and Lipton and Lorsch (1992) who argue that large boards are less effective and are easier for the CEO to control than smaller boards. When a board becomes too big, it becomes difficult to co-ordinate and process problems (Eisenberg et al. 1998). In addition, there is further argument that smaller boards also reduce the possibility of free riding by individual directors, and enhance their decision making processes (Sanda et al. 2011; Huse, 2007). Other empirical research supports this argument, for example, Yermack (1996) documented that, in the case of large United States industrial corporations, the market values firms with smaller boards more highly than those with larger boards. Similarly, in a Nigerian study, Sanda et al (2011) found that, firm performance is positively related to small, as opposed to large boards.

The size of the firm as measured by total assets, had an insignificant negative impact on ROA as evidenced by the *t*-statistic of -1.533 ($p>0.05$). This result is consistent with the findings of

Nicholson and Kiel (2003), who suggested that larger companies, as measured by asset size, also find it difficult to produce a strong percentage return (ROA) on assets. As in the case of Tobin's *Q*, the Construction, Financial Services and Real Estate, and the Mining and Extracting industries all displayed a negative but significant relationship with ROA as measured by *t*-statistics of -2.815, -3.081, and -3.106 respectively and all with a ($p<0.05$). Similar, to Tobin's *Q*, the coefficient for the King III report, although displaying a negative relationship with ROA, was significant as measured by the *t*-statistic of -4.910 ($p<0.05$).

Table 4.4: OLS dependent variable: return on total assets (%)

Model – Equation 2		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.793	2.491		1.925	.054
	Operating Rev./Turnover th LCU	2.141E-007	.000	.227	.858	.391
	Total Assets th LCU	-2.645E-008	.000	-.094	-1.533	.125
	Shareholders Funds th LCU	-2.770E-007	.000	-.185	-4.033	.000
	Net Income th LCU	1.281E-006	.000	.204	7.292	.000*
	Market Cap. th LCU	1.083E-007	.000	.188	5.165	.000*
	Return on Shareh. Funds (%)	.148	.004	.605	35.187	.000*
	Sales th LCU	-2.709E-007	.000	-.280	-1.102	.271
	Exec Directors	-.005	.327	-.001	-.015	.988
	Percentage of Independent Non Exec	.009	.042	.008	.215	.830
	AGRICULTURE & FISHING	.544	2.228	.004	.244	.807
	CONSTRUCTION	-3.467	1.232	-.059	-2.815	.005
	DIVERSIFIED HOLDING COMPANIES	-2.833	1.469	-.037	-1.928	.054
	FINANCIAL SERVICES AND REAL ESTATE	-3.020	.980	-.081	-3.081	.002
	HEALTH CARE	-2.853	1.600	-.034	-1.784	.075
	HOTELS AND RESTAURENTS	-.150	1.637	-.002	-.092	.927

MANUFACTURING INDUSTRY	-.709	1.029	-.017	-.689	.491
MINING & EXTRACTING INDUSTRIES	-3.423	1.102	-.075	-3.106	.002
TELECOMMUNICATION AND ELECTRONICS	-1.220	1.043	-.028	-1.170	.242
TRANSPORT SERVICES	-4.417	2.108	-.037	-2.095	.036
Class=Listed	1.842	1.027	.031	1.794	.073
King 3 Indicator	-2.634	.530	-.084	-4.970	.000**
Board Size	.144	.176	.044	.815	.415

a. R Squared = .491 (Adjusted R Squared = .485)

Table 4.5 represents the regression results of the interaction between Return on Equity (ROE) and the governance variables. As regards board composition, ROE was negatively related and not significant to the percentage of independent non-executive directors with a *t*-statistic of -2.146 ($p>0.05$). This result contradicts the findings of earlier studies that showed that the more outsiders there were on a board, the more independent the board and the better the performance of the firm thus confirming John and Senbet (1998), argument that boards of directors become more independent as the proportion of outside director's increase. As already mentioned, Agrawal and Knoeber (1996), point out that, when boards expand for reasons of political expediency, this often results in too many outsiders on the board and this, in turn does improve performance. Fosberg (1989) also found a negative relationship between board composition and ROE as a firm performance measure.

The board size was significantly positively related to Return on Equity as measured by the *t*-statistic of 2.895 ($p<0.05$). Resource dependence theories have been used to argue in favour of a positive relationship between board size and corporate financial performance (Huse, 2007). Resource dependence theory argues that boards form environmental links in order to secure resources and, thus, a large board would be better able to do so than a small board (Huse, 2007).

It is therefore argued that, the greater the need for external linkages, the larger the board should be (Pfeffer & Salancik, 1978). In addition, Huse (2007) argues that interlocking directorates are expected to facilitate both communication and inter-organisational coordination and, thus, from this perspective it may also be argued that a larger board will be associated with positive corporate performance as compared to a smaller board.

It must however be pointed out that all these governance variables are not statistically significant in explaining ROE, although the board size, Net Income and Return on Shareholders' funds are all significant. The size of the firm as represented by total assets was positively related to ROE but not significant as measured by the *t*-statistic of 1.242 ($p>0.05$), with this *t*-statistic falling below the benchmark of < 2 for the t-test. This again confirms that firms in South Africa were not utilising their size and assets to enhance financial performance. The coefficient for the King III report, although displaying a negative relationship with ROE, was significant as measured by the *t*-statistic of -4.021 ($p<0.05$).

Table 4.5: OLS dependent variable: return on equity (ROE) %

Model – Equation 3		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18.671	8.558		2.182	.029
	Operating Rev./Turnover th LCU	-1.314E-006	.000	-.441	-1.554	.120
	Total Assets th LCU	7.274E-008	.000	.083	1.242	.214
	Shareholders' Funds th LCU	-6.572E-007	.000	-.140	-2.780	.005
	Net Income th LCU	3.241E-006	.000	.168	5.609	.000*
	Market Cap. th LCU	-8.895E-009	.000	-.005	-.125	.901
	Return on Shareh. Funds (%)	.427	.013	.596	31.829	.000*

Sales th LCU	1.300E-006	.000	.426	1.560	.119
Exec Directors	-2.441	1.129	-.138	-2.162	.031
Percentage of Independent Non Exec	-.307	.143	-.088	-2.146	.032
AGRICULTURE & FISHING	-2.531	7.559	-.006	-.335	.738
CONSTRUCTION	-12.730	4.325	-.066	-2.943	.003
DIVERSIFIED HOLDING COMPANIES	-3.767	5.136	-.015	-.733	.463
FINANCIAL SERVICES AND REAL ESTATE	-.175	3.391	-.001	-.052	.959
HEALTH CARE	.745	5.488	.003	.136	.892
HOTELS AND RESTAURENTS	-4.302	5.669	-.015	-.759	.448
MANUFACTURING INDUSTRY	-2.203	3.579	-.016	-.616	.538
MINING & EXTRACTING INDUSTRIES	-3.934	3.817	-.027	-1.031	.303
TELECOMMUNICATION AND ELECTRONICS	-2.689	3.606	-.019	-.746	.456
TRANSPORT SERVICES	-7.411	7.155	-.020	-1.036	.300
Class=Listed	1.659	3.513	.009	.472	.637
King 3 Indicator	-7.377	1.835	-.074	-4.021	.000**
Board Size	1.766	.610	.169	2.895	.004*

a. R Squared = .424 (Adjusted R Squared = .417)

4.5 Summary

Based on the findings of this research study, it may be posited that there is a lack of association between the firm performance of South African organisations and the board composition and board size of the firm concerned. However, this research study did find evidence of a positive significant relationship between board size of companies listed on the JSE Securities Exchange and Return on Equity as a performance measure. In line with international studies conducted in developed markets, such as Bhagat & Black (2002); Nicholson & Kiel (2003); Yermack (1996); and Fosberg (1989), the findings of this research study suggest that board composition and board size are not important determinants of firm performance in South Africa although King III does contain recommendations in regard to board composition. The following chapter summarise the research study and concludes the study.

Chapter V: Summary and Conclusion

It is not possible to overemphasise the importance of corporate governance as it enhances the organisational climate for the internal structures and performance of a firm (Sanda et al. 2011). Indeed, through the presence of external independent directors, corporate governance creates a new dimension as regards the effective running of a corporate entity thereby enhancing a firm's corporate entrepreneurship and competitiveness (Wu, 2003).

5.1 Summary

This empirical study examined the relationship between some measures of corporate governance including board composition and board size, and the firm performance of all listed public firms on the Johannesburg Securities Exchange from 2006 to 2012 with 2010 when King III came into effect, as the base year. The study followed similar research conducted by Bhagat and Black (2002), and Yermack (1996) in the United States. There have been previous studies most notably the study conducted by Naomi Swartz in 2003 into the Johannesburg Securities Exchange and which focused on board structure and intellectual capital as a firm performance measure.

Chapter 1 introduced the research study and chapter 2 contained a review of the relevant literature with the chapter also describing corporate governance reforms and theories in South Africa which have resulted from King I in 1994, King II in 2002 and then King III in 2009. The empirical history of the corporate governance theories (agency and resource dependency theory) in various markets and in different contextual settings was examined. This was followed by a review of the emergence of corporate governance reforms in South Africa and recommendations

of King III on board composition and a discussion of board composition and size and firm performance.

Chapter 3 discussed the research methodology utilised in the study, including the background of the regression model, the research methods applied, and the validity and reliability, limitations and delimitations of the study. The two independent variables of interest were defined as board size as measured by the number of directors sitting on the board and board composition as measured by the percentage of independent non-executive directors sitting on the board of directors. Chapter 3 also discussed and described the population and study sample, data collection method and analysis, and defined the period under study. The study was limited to JSE listed firms in the period from 2006 to 2012. The size of the sample for this research report was 1861 firms, over a seven year period.

Chapter 4 discussed the research findings (Results), including as explanation of the descriptive statistics, the regression diagnostics and the results of the Ordinary Least Squares Regression models.

5.2 Conclusion

In respect of Equation 1 (logtobinq), a *t*-statistic of .774 ($p>0.05$) indicated a positive, yet insignificant relationship between the percentage of independent non-executive directors on the boards of directors of South African firms listed on the JSE Securities Exchange and Tobin's *Q*. These findings suggest that the independence on the board of directors is not an important determinant of firm performance as measured by Tobin's *Q*. In order to decide whether board size could be used to explain firm performance, equation 1 also hypothesised that there was a

positive and yet insignificant relationship between the board size of South African firms listed on the JSE Securities Exchange and Tobin's *Q* as a performance measure and as evidenced by a *t*-statistic of 1.521 ($p>0.05$). These findings suggest that board size is not an important determinant of firm performance when using Tobin's *Q*.

Equation 2 (ROA), hypothesised that there was a positive and insignificant relationship between the percentage of independent non-executive directors on the board of directors of South African publicly listed companies and ROA as a firm accounting performance measure. The findings did not support this hypothesis with the *t*-statistic of the independent variable being calculated as 0.215 ($p>0.05$). The alternate hypothesis was therefore rejected. Thus, the findings suggest that the presence of a majority of independent non-executive directors on the board of directors is not related to ROA as a firm's accounting performance measure. The same results were obtained as regards board size, where there was a positive yet insignificant relationship between the independent variable and ROA as evidenced by a *t*-statistic of 0.815 ($p>0.05$).

In respect of Equation 3 (ROE), a *t*-statistic of -2.146 ($p>0.05$) indicated a negative, and insignificant relationship between ROE as a firm accounting performance measure and the percentage of independent non-executive directors on a board of directors. In order to decide whether board size could explain and predict firm financial performance, equation 3 hypothesised that there was a positive relationship between board size and ROE as a measure of firm accounting performance. The findings indicated a significant relationship as evidenced by a *t*-statistic of 2.895 ($p<0.05$). Thus, these findings suggest that the percentage of independent non-

executive directors on the board of directors is not a determinant of firm financial performance, while the board size is a determinant when ROE is used as a measure of firm performance.

The control variables, Market Capitalisation, Return on Shareholders Fund, Net Income and certain dummy industry variables included in the equations yielded significant positive relationships at a 5% confidence level in the 3 regression equations tested although a majority of the variables were insignificant at a greater than 5% confident level. The control factors contributed to the explanatory power of the models. Although this study found a strong significant positive relationship when using ROE as a firm performance measure and board size, it is clear from the measure of model fit (R^2 and adjusted R^2) presented in Table 4.3, 4.4, 4.5, and appendix 2 that there are other variables which were not included in the model and which also affected firm performance and which needed to be added to the model. Although the R^2 of below 0.5 (<50%) and the adjusted R^2 of below 0.5 (<50%) for all 3 dependent variables indicated that the predictive power of the model was low, the results did, however, confirm that the model was stable and adequate as a base for testing the hypotheses. As a whole, the findings indicated that the contribution of board composition and size to firm performance was explanatory, but mixed.

In conclusion, the empirical findings suggest board composition and board size are not primary determinants of firm performance as regards the South African companies listed on the JSE Securities Exchange. Overall the findings suggest that despite the importance of good corporate governance practices, firm performance when defined by Tobin's *Q*, ROA & ROE is not primarily dependent on board composition and board size as no positive significant relationship was found on the 3 regression equations except for board size and ROE.

5.3 Recommendations and areas for further research

Every board should consider whether its size, diversity and demographics render it effective (IOD, 2009). The issue of diversity applies to the academic qualifications, technical expertise, relevant industry knowledge, experience, nationality, age, race and gender of the board members (IOD, 2009). King III notes that directors should be individuals of integrity and courage, and that they should possess the relevant knowledge, skills and experience required to bring judgement to bear on the business of the company (Deloitte, 2013). In situations in which the directors may lack experience, detailed induction as well as formal mentoring and support programmes should be implemented (Deloitte, 2013).

Thus, a board should establish a formal induction programme to familiarise incoming directors with the company‘s operations, its business environment, and the sustainability issues relevant to its business (IOD, 2009; Deloitte, 2013). In addition, the programme should ensure that incoming directors are introduced to the members of senior management and to their respective duties and responsibilities (Deloitte, 2013). An appropriate induction programme should meet the specific needs of both the company and the individual and should enable any new director to make the maximum contribution as quickly as possible (IOD, 2009). New directors with either no or limited board experience should be developed and educated as regards their duties, responsibilities, powers and potential liabilities (IOD, 2009; Deloitte, 2013). Thus mentorship by experienced directors is encouraged. It is important to remember that the development of the skills of inexperienced directors is vital in alleviating the shortage of the pool of directors available for appointment (Deloitte, 2013).

It is also possible that some directors who are classified as independent are not truly independent of management because they are beholden either to the company or its current CEO in ways which are too subtle to be captured in the customary definitions of independence (Bhagat & Black, 2002). On that note King III, recommends that, every year, those non-executive directors who are classified as independent should undergo an evaluation of their independence by the chairman and the board and if the chairman is not independent, the process should be led by the lead Independent non-executive director. Independence in this context should be assessed by weighing all the relevant factors that may compromise independence while the classification of directors as independent or otherwise in the integrated report should be done on the basis of this assessment (IOD, 2009). Any term beyond nine years (e.g. three three-year terms) for an independent non-executive director should be subject to a particularly rigorous review by the board of not only the performance of the director, but also of those factors that may impair his/her independence at the time (IOD, 2009). King III noted that, the review should also take into account the need for refreshing the board.

The CEOs of companies in different industries (in terms, of number, are the majority of independent directors) are too busy with their own business, know too little about another business, and are overly generous in compensating another CEO (Nicholson & Kiel, 2003). It may, thus, be that the "visible" directors, who are well-known persons with limited business experience, and often holding multiple directorships as well as adding gender or racial diversity to a board, are not, on average, extremely effective as directors (Bhagat & Black, 2002). King III recommends that a programme ensuring a staggered rotation of non-executive directors should be put in place by the board to the extent that the programme is not already regulated by the

company‘s memorandum of incorporation or relevant regulation. The rotation of board members should be structured so as to ensure that valuable skills are retained the continuity of knowledge and experience maintained and directors with new ideas and expertise are introduced (IOD, 2009). At least one-third of non-executive directors should retire by rotation yearly, usually at the company’s Annual General Meeting or at other general meetings, unless otherwise prescribed by any applicable legislation (IOD, 2009). However, these retiring board members may be re-elected, provided they are eligible. The board, through the nomination committee, should recommend eligibility, while taking into account past performance, contributions and the objectivity of business judgement calls (IOD, 2009).

It may be that independent directors who have served for too long become, over time, less vigorous monitors (Bhagat & Black, 2002). However, King III recommends that independent non-executive directors may serve for longer than nine years if, after an independence assessment by the board, there are no relationships or circumstances which are likely to affect, or which appear to affect, the director’s judgement. The assessment should show that the independence of character and judgement of the independent director is not in any way affected or impaired by the length of service, and a statement to this effect should be included in the integrated report (IOD, 2009). King III notes that shareholders are ultimately responsible for the composition of the board and it is in their own interests to ensure that the board is properly constituted as regards skill and representivity. The procedures in respect of appointments to the board should be formal and transparent and should be a matter for the board as a whole, assisted by the nomination committee, and subject to shareholder approval (IOD, 2009).

A final possibility is that independent directors may add value to a board, but only if they are embedded in an appropriate board committee[7] structure (Deloitte, 2013). Boards should ascertain whether potential candidates are competent to be appointed as directors and would be able to contribute to the business judgement calls to be made by the board (IOD, 2009). In assessing the skills and suitability of a proposed candidate director, there are three aspects that merit consideration, firstly, the knowledge and experience required to fill the gap on the board, secondly, the apparent integrity of the individual, and lastly, the skills and capacity of the individual as regards fulfilling his/her duties to the board (IOD, 2009). Prior to appointment, the director's background should be investigated along the lines of the approach required for listed companies by the JSE (IOD, 2009). It is also important to ensure that new directors have not been declared delinquent nor are serving probation (S162 of the Act). The nomination committee should play a role in this process.

Directors should receive regular briefings on matters relevant to the business of the company as well as changes in risks and the laws applicable to the business of the company, including accounting standards and policies, and the environment in which the company operates (IOD, 2009) Incompetent or unsuitable directors should be removed from the office, while taking relevant legal and other requirements into consideration (IOD, 2009).

This research study focused exclusively on board composition (defined by the percentage representation of independent non-executive directors on the board) and board size and firm performance. Further research could be conducted in other areas such as board structure with a

[7] These committee structures includes; nomination, audit, and remuneration committees (Bhagat & Black, 2002)

focus on director remuneration, directorship positions held, age, director qualifications, and gender diversity among directors. In addition, this research study examined the association between board composition and firm performance within an isolated corporate governance setting and, thus it could be extended to consider nations with a different corporate governance structure to South Africa.

5.4 Limitations of the study

There are certain limitations to this study. The study focused on board independence and board size as important variables in terms of which to examine the correlation between board composition and firm performance while other characteristics such as tenure, diversity, age, gender, qualification and the background of directors were not examined. In addition, financial ratio may not totally reflect the important role of the board in corporate governance. Firm performance is a result by interaction between several drivers and socio-economic factors. Thus, besides the factors considered in this study, there are many other factors including strategy, network, and social environment that may be taken into account.

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Table 4.6: Frequencies of performance variables

Statistics

		Return on Total Assets (%)	Return on equity (ROE) %	Tobin's Q
N	Valid	**2330**	**2123**	**2369**
	Missing	**39**	**246**	**0**

Table 4.7: Means and standard deviations

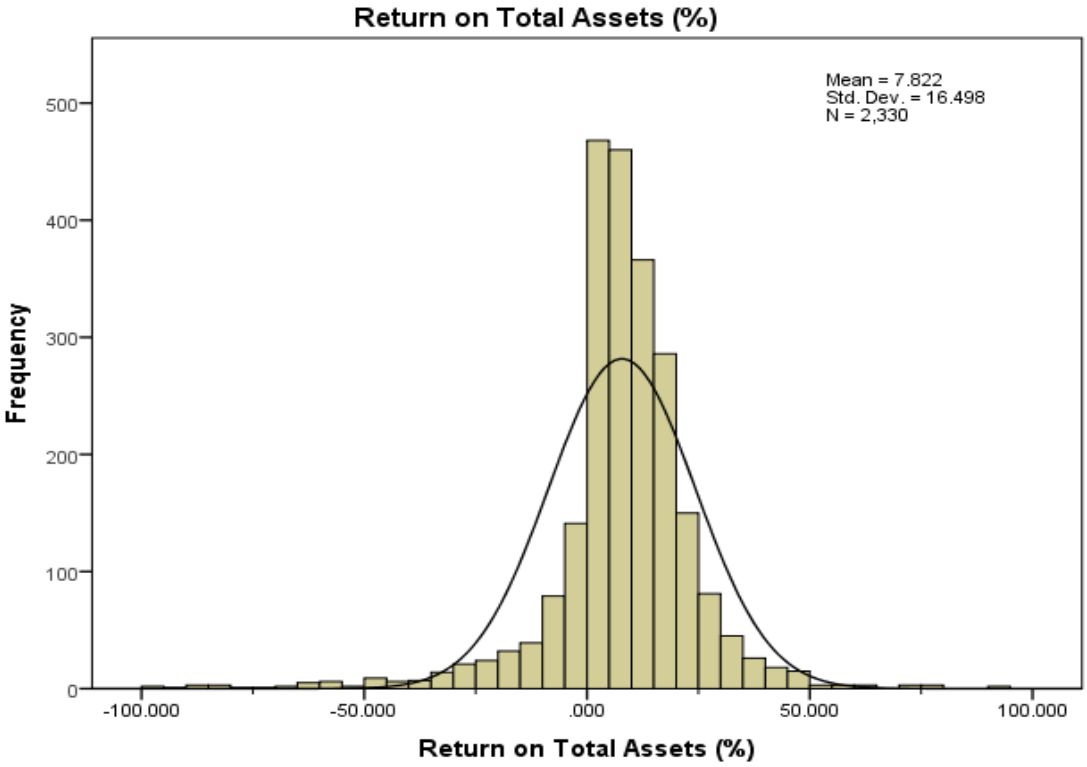
		King 3 Indicator		
		Before to King 3	After to King 3	Total
Operating Rev./Turnover th LCU	Mean	5646666.14	7616055.52	6478563.38
	Std. Deviation	14188078.612	17853920.340	15866609.636
	Grouped Median	717343.50	1024370.50	833139.00
	N	1340	980	2320
Total Assets th LCU	Mean	19171342.00	24838287.89	21565488.97
	Std. Deviation	99891328.991	118037357.589	107942720.940
	Grouped Median	998929.00	1445404.50	1157952.00
	N	1367	1000	2367
Shareholders Funds th LCU	Mean	3346321.69	4981656.28	4037210.83
	Std. Deviation	9622065.866	13729557.047	11562734.017
	Grouped Median	430019.00	658289.50	516793.00
	N	1367	1000	2367
Net Income th LCU	Mean	705641.95	767789.10	731852.06
	Std. Deviation	2580016.177	2581055.333	2580090.964
	Grouped Median	60241.00	55047.00	59271.50
	N	1367	997	2364
Market Cap. th LCU	Mean	8141134.86	10621909.86	9265922.41
	Std. Deviation	24447203.787	30890439.596	27576876.903
	Grouped Median	906730.69	926780.46	921080.18
	N	1173	973	2146
Return on Shareh. Funds (%)	Mean	22.44	9.46	16.96
	Std. Deviation	78.641	68.939	74.958
	Grouped Median	23.25	14.72	19.18
	N	1328	970	2298
Sales th LCU	Mean	5137846.37	6793131.26	5851844.73

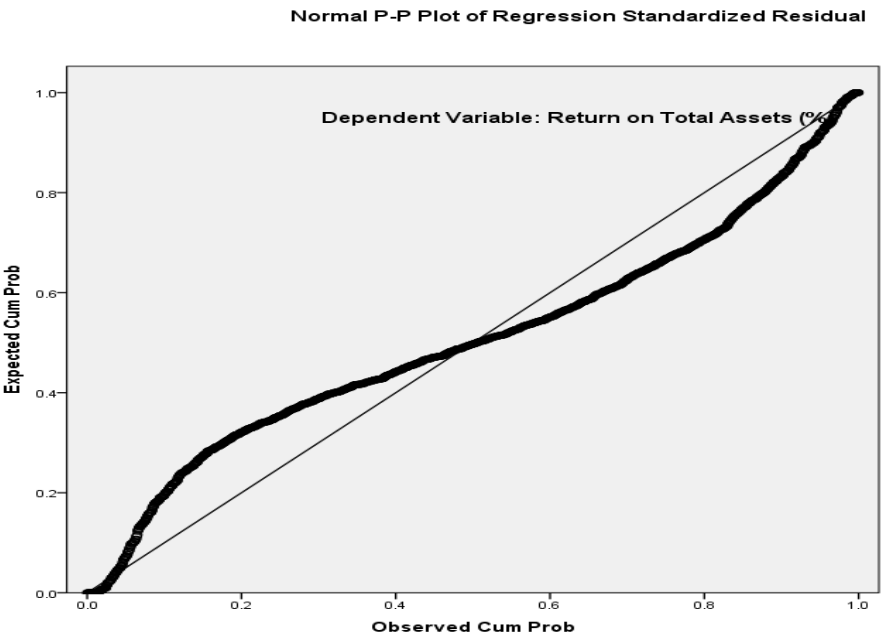
	Std. Deviation	13803582.094	17319907.114	15436904.741
	Grouped Median	679494.00	875822.00	759649.00
	N	1201	911	2112
Independent Non Exec	Mean	6.59	7.23	6.86
	Std. Deviation	3.464	3.215	3.376
	Grouped Median	6.24	6.86	6.52
	N	1368	1000	2368
Exec Directors	Mean	6.29	6.31	6.30
	Std. Deviation	2.911	2.954	2.929
	Grouped Median	5.78	5.81	5.79
	N	1365	999	2364
Board Size	Mean	12.87	13.54	13.15
	Std. Deviation	5.025	4.947	5.002
	Grouped Median	12.31	12.87	12.56
	N	1368	1000	2368
Percentage of Independent Non Exec	Mean	49.89324	53.05512	51.22849
	Std. Deviation	16.831901	13.835026	15.711285
	Grouped Median	51.98824	54.54539	53.64998
	N	1368	1000	2368
Tobin's Q	Mean	1.31784	1.30945	1.31430
	Std. Deviation	1.005193	.868848	.949822
	Grouped Median	1.16448	1.10823	1.14057
	N	1368	1000	2368
Company Age	Mean	38.91	36.47	37.88
	Std. Deviation	56.952	30.928	47.733
	Grouped Median	26.29	25.40	25.91
	N	1368	1000	2368

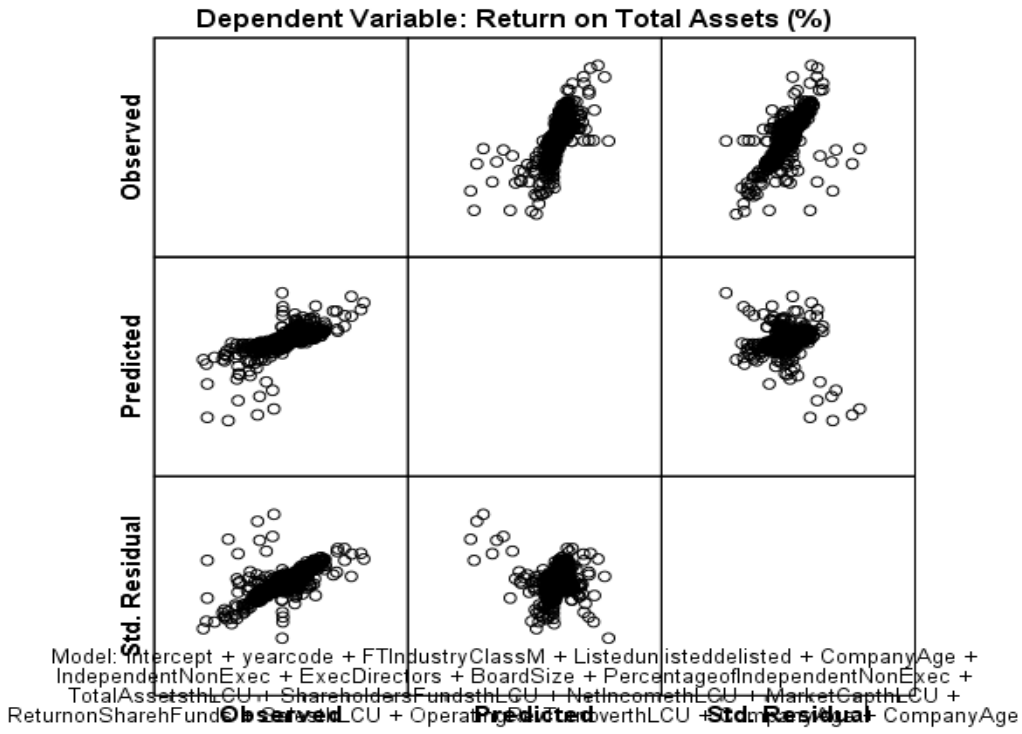
Table 4.8: Multicollinearity diagnostics

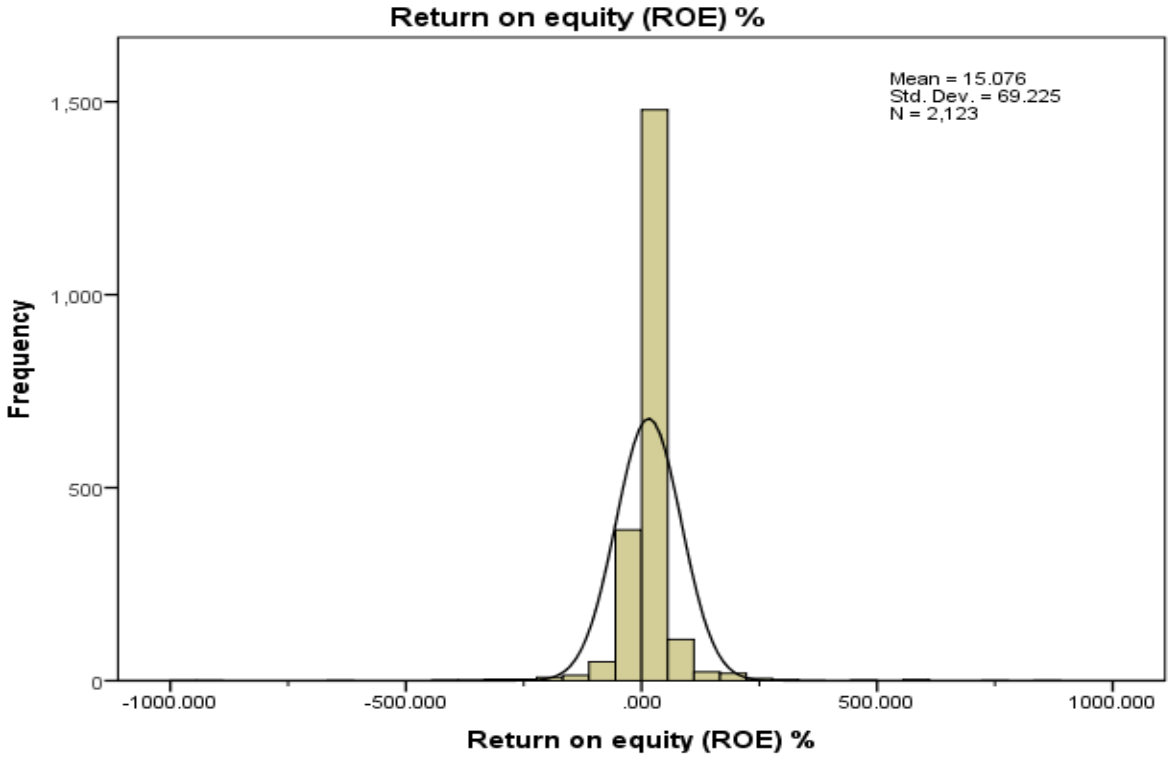
Correlation coefficient								
Array 1		ROE						
Array 2		ROA						
Calculated coefficient		-0.0689						
Variable Inflation Factor Collinearity Diagnostics								
Model		**Unstandardized Coefficients B**	**Sig**	**Correlations Zero Order**	**Partial**	**Part**	**Collinearity Statistics Tolerance**	**VIF**
1	Constant	1.852	0.000					
	ROA	3.146	0.003	0.425	0.277	0.192	0.580	1.778
	ROE	2.387	0.000	0.559	0.343	0.23	0.567	1.716
	Total Assets	4.63E-08	0.000	0.383	0.45	0.319	0.879	1.151
	DE	0.313	0.001	0.260	0.357	0.281	0.675	1.252
	TO-RATIO	2.58E-02	0.012	0.405	0.248	0.165	0.467	2.120
Eigen Value Collinearity Diagnostics								
Model	**Dimension**	**Eigen Value**	**Condition Index**	**Variance Proportions (Constant)**				
1	1	4.434	1.000	0.01				
	2	1.135	1.961	0.00				
	3	1.084	2.075	0.00				
	4	0.812	2.342	0.00				
	5	0.760	2.57	0.00				
	6	0.465	3.171	0.01				
	7	0.201	4.559	0.11				
	8	0.108	6.389	0.44				
	9	0.372	8.324	0.44				

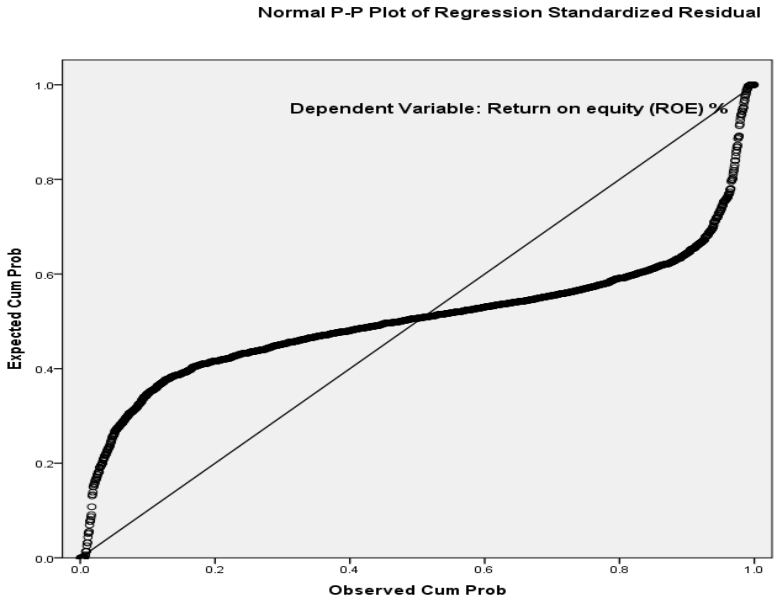
Appendix 1 – Histograms, P-P plots and scattergrams

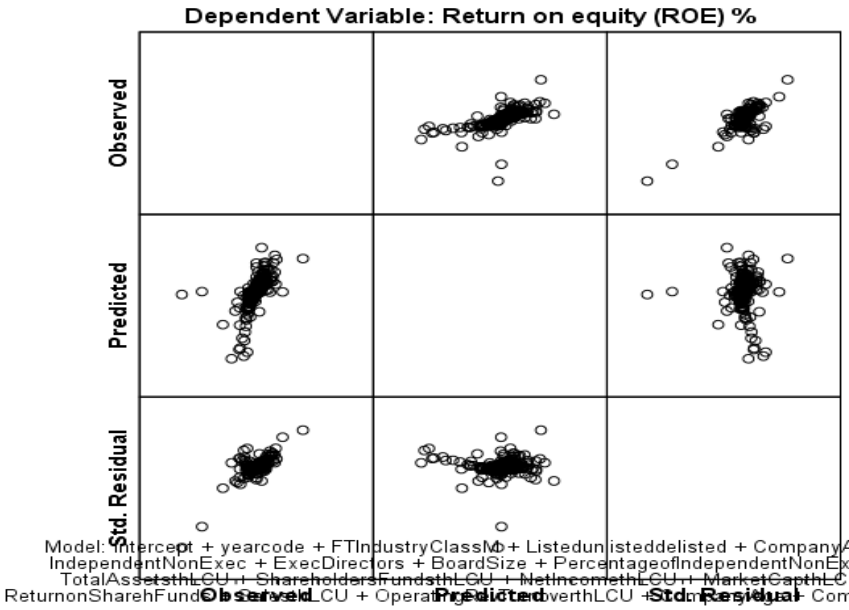




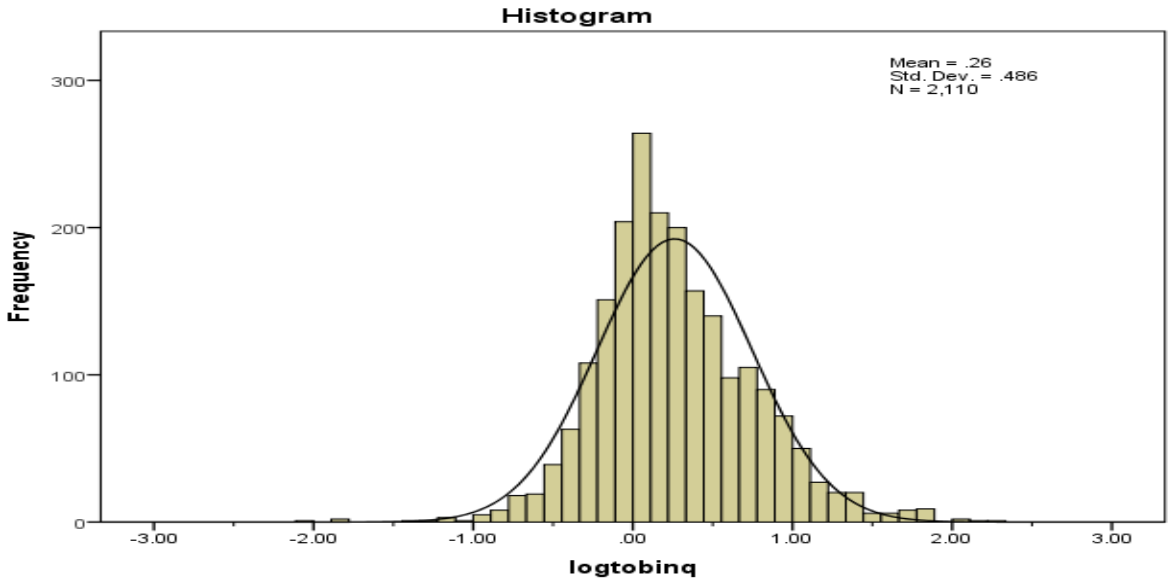

Dependent Variable: Return on Total Assets (%)
Observed
Predicted
Std. Residual
Observed
Predicted
Std. Residual
Model: Intercept + yearcode + FTIndustryClassM + Listedunlisteddelisted + CompanyAge + IndependentNonExec + ExecDirectors + BoardSize + PercentageofIndependentNonExec + TotalAssetsthLCU + ShareholdersFundsthLCU + NetIncomethLCU + MarketCapthLCU + ReturnonSharehFundsthLCU + OperatingRevenuethLCU + CompanyAge

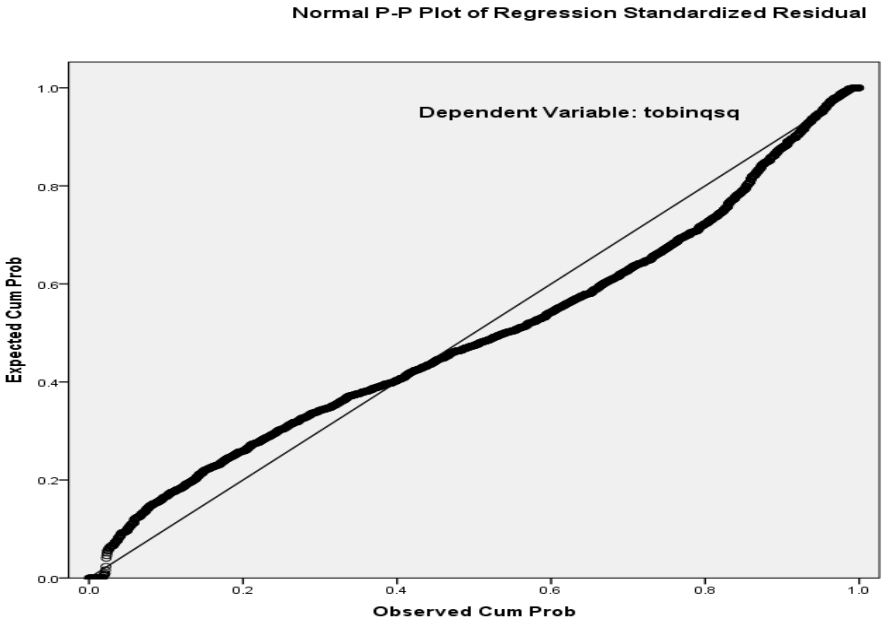

Return on equity (ROE) %
Mean = 15.076
Std. Dev. = 69.225
N = 2,123
Frequency
1,500
1,000
500
0
-1000.000
-500.000
.000
500.000
1000.000
Return on equity (ROE) %

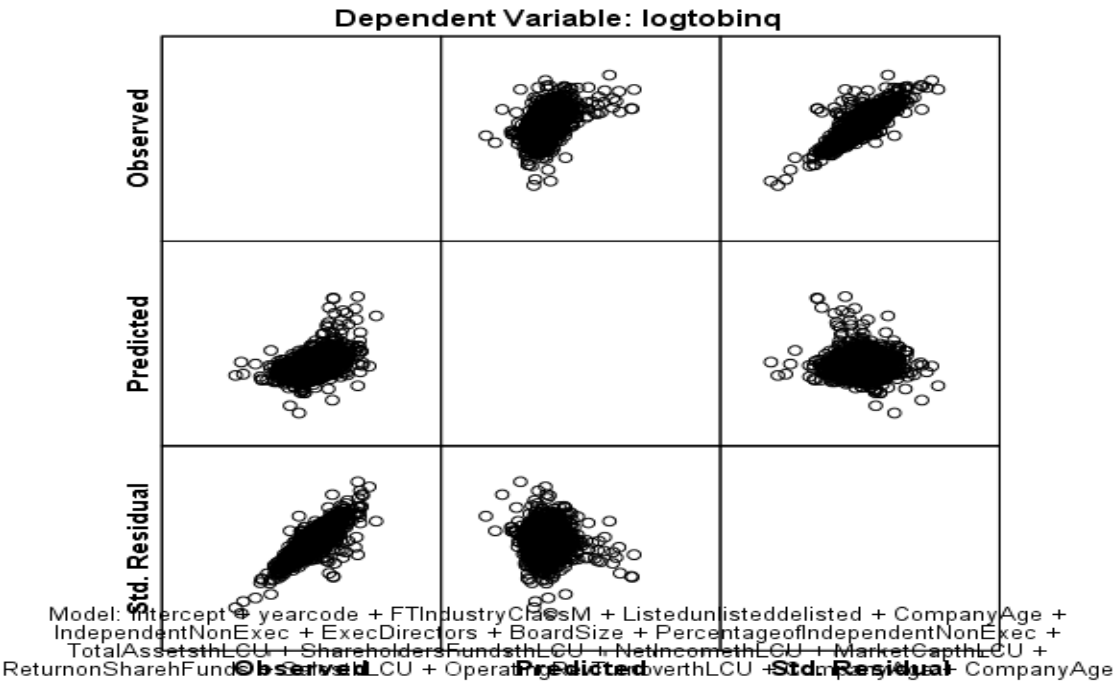




Model: Intercept + yearcode + FTIndustryClassM + Listedunlisteddelisted + CompanyAge + IndependentNonExec + ExecDirectors + BoardSize + PercentageofIndependentNonExec + TotalAssetsthLCU + ShareholdersFundsthLCU + NetIncomethLCU + MarketCapthLCU + ReturnonSharehFundsthLCU + OperatingProfitthLCU + SalesgrowthLCU + CompanyAge


Histogram
Mean = .26
Std. Dev. = .486
N = 2,110
Frequency
300
200
100
0
-3.00
-2.00
-1.00
.00
1.00
2.00
3.00
logtobinq


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: tobinqsq
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0



Appendix 2 – Durbin-Watson statistics

Durbin-Watson statistics – Tobin's Q

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	*.479[a]*	*.229*	*.220*	*.29985*	*1.773*

Durbin-Watson statistics – ROA

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	*.701[a]*	*.491*	*.485*	*11.181536*	*1.910*

Durbin-Watson statistics – ROE

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	*.651[a]*	*.424*	*.417*	*37.813558*	*1.917*